JOHNS HOPKINS UNIVERSITY CIRCULARS

Published with the approbation of the Board of Trustees

VOL. XIV.—No. 118.] BALTIMORE, APRIL, 1895. [PRICE, 10 CENTS.

COMMEMORATION DAY.

CONTENTS.

COMMEMORATION DAY:—
Address by President Low, - - - - - - - - - - 53
Meetings of the Alumni Associations, - - - - - - - 57
SCIENTIFIC NOTES:—
On the Legend of the Alban Lake told by Dionysius of Halicarnassus. By KIRBY F. SMITH, - - - - - - - - - 61
The Awntyrs of Arthur at the Terne Wathelyne. By WILLIAM HAND BROWNE, - - - - - - - - - - - - 62
Aristotle on the Faults of Poetry; or Poetics XXV in the light of the Homeric Scholia. By MITCHELL CARROLL, - - - - - 62
Indirect Discourse in Anglo-Saxon. By J. H. GORRELL, - - 63
On the Etymology of the Term Ševâ. By C. LEVIAS, - - - 64
On the Use of the Imperative in the Protasis of a Conditional Sentence. By C. LEVIAS, - - - - - - - - - - 64
On the Motion of a Physical Pendulum on the Surface of the Earth. By A. S. CHESSIN, - - - - - - - - - - - 64
RECENT PUBLICATIONS IN HISTORY AND POLITICS, - - - - 66
PROCEEDINGS OF SOCIETIES, ETC., - - - - - - - - 68
CURRENT NOTES, - - - - - - - - - - - - 68

PUBLIC EXERCISES ON FEBRUARY 22, 1895.

The NINETEENTH COMMEMORATION DAY was observed by a celebration in McCoy Hall. The various bodies constituting the Johns Hopkins University proceeded to the large assembly room, at eleven o'clock, a. m., in the following order:—The Alumni;—The Candidates for Degrees;—The Fellows, Fellows by Courtesy, Scholars, and other Graduate Students;—The Students of the Medical School;—The Undergraduate and Special Students;—The Philosophical Faculty;—The Medical Faculty, with the Lecturers of the Medical School and the staff of the Johns Hopkins Hospital;—The President of the University and the President of the Board of Trustees, the Governor of Maryland and the Mayor of Baltimore; the Orator and the Chaplain of the day, the Trustees of the University and of the Hospital, the Trustees and Provost of the Peabody Institute; and guests personally invited.

The instrumental music was given by the Haydn Musical Association under the direction of Professor Heimendahl. A chorus of students sang a hymn, by Dr. Holmes—"Lord of all being, throned afar," and the ode entitled "Veritas Vos Liberabit."

The principal address was given by the Honorable Seth Low, LL. D. Professor Remsen made a statement respecting *Argon*, and President Gilman a statement respecting the part which the University had taken in determining the value of the *Ohm*. The Degree of Doctor of Philosophy was conferred upon William Henry Maltbie (A. B., Ohio Wesleyan University, 1890), and Edward Bennett Mathews (A. B., Colby University, 1891), and that of Bachelor of Arts upon Ernest Pendleton Magruder, of Maryland.

A CITY UNIVERSITY.

AN ADDRESS

Delivered before the Johns Hopkins University, February 22, 1895,

BY HON. SETH LOW, LL. D.

President of Columbia College.

It is the glory of Baltimore that here was illustrated for the first time, in a new way, the availability of an American city to be the home of a university. It is the glory of this university that, being of a type new to American experience, its methods and its ideals have been largely adopted by both the older and the new institutions of the higher learning in the United States. I do not forget that my own Alma Mater, Columbia College, had been at work in New York for more than a century before the Johns Hopkins was founded, nor that she wore the aspect of a university in that she had surrounded herself even then with a series of professional schools that already had a national reputation. Neither do I overlook the fact that, as early as 1857, the Trustees of Columbia College endeavored to develop in New York instruction of a university grade and spirit in the subjects usually included in the faculty of philosophy—in those subjects, in a word, which the Johns Hopkins has made its own. But in 1857 neither time nor place were friendly and the project failed of success. Naturally, I am not speaking now of college work, for Columbia's contributions to the country on that side are neither few nor small. When, therefore, President Gilman was called to the duty of organizing the Johns Hopkins University, the man and the opportunity for a university of a new type met in America for the first time. The time at last was ripe, and the sagacious administrator was at hand to summon its possibilities into being. I trust that I shall not offend the sensibilities of the people of Baltimore if I say that, before the Johns Hopkins University was established, the city had no especial reputation as an educational centre. There must, indeed, have been here, in at least one mind, a clear apprehension of the great value to a community of an institution of the higher learning or the foundation provided by Johns Hopkins would not have been set up. To-day your city has both a national and an international reputation as the seat of this university. I marvel at the achievement of less than twenty years. If any argument were needed to demonstrate the fitness of a city to be the home of a university, your experience would supply it. I wonder if the people of Baltimore are alive to the fame that is theirs by reason of the work that the Johns Hopkins University has done in their midst. The city ought to cherish the university as the apple of its eye. No wealthy Baltimorean should die without adding to its resources. The name, like those of John Harvard and of Eli Yale, in time will become impersonal, and yours will be the pride and the enjoyment of its growing repute.

If I were to try to point out what this Baltimore university has done for the higher education in the United States, I should emphasize, first of all, the value of its demonstration that a university does not consist of great

buildings, nor of an extensive campus, nor of any of the accessories which we have been in the habit of associating in these later years with our historic colleges. The university consists of its teachers, and of the libraries, the museums, the collections, the apparatus that is necessary for its work. Only this, and you may have a university. This is not to say that a university ought not to be nobly housed. If this were so, I should not be striving at this moment to move the university of Columbia College to a new site, the cost of which for land alone is $2,000,000. When the conditions favor, a city cannot give to its university too noble a home. You may judge a city, indeed, as to the estimate it puts upon the value of the higher learning, by the home it provides for its university, when the university has brought to the city fame and the world's regard. But, if President Gilman had used up his endowment in the construction of great buildings, men might, indeed, have said, "behold, what great buildings are here," but they would not have said, as they now say, "behold, what a university is here." I have ventured to adapt the spirit of this illustration to my own work in New York. I have urged the Trustees to put their own resources into education, in the confidence that, when Columbia was seen to be of increasing service to the city, the generous people of New York would see to it that we should not go without buildings. This policy, and this alone, in my judgment, has made possible our recent development and has made practicable our project of removal to the new site. It has brought to Columbia College, in one way and another, about $5,000,000 in five years.

This statement, in turn, helps to illustrate what we are talking about when we speak of a city university. For the work of an American college, in the historic sense, no such vast endowments are necessary. It is true that the use of the elective system and the teaching of natural science in our colleges by laboratory methods call for larger endowments than were formerly sufficient, but the vast sums needed by a university are not needed by a college even now. The aim of the college is to give a liberal education. It opens up vistas in many directions into wide domains of knowledge, but it does not undertake to lead the student far along any one path. It deals with students in considerable groups, and withal, with students for the most part from sixteen to twenty years of age. The university, on the other hand, deals with students, for the most part, who are upwards of twenty years of age. Ideally, these students have already had the liberal education which the college aims to supply. They are ready, therefore, to enter upon advanced work, and what they demand of the university is the opportunity to carry their studies in any direction which is of interest to the human mind to the utmost limit of that which is already known. They demand more than this. They wish to be taught how to make researches on their own account, how to use the books, the methods and the apparatus which make a man competent to add to the sum of human knowledge by contributions of his own. It is true that every student who studies with that hope has not the natural gifts to enable him to become an original investigator. On the other hand, students who pursue their studies by that method, at the very least become thoroughly acquainted with their subject as they cannot become acquainted with it in any other way. A necessary consequence of this aim of the university is to compel the university to deal with its students to a much greater extent as individuals. Each man must be guided in his reading and his experimental work as nearly as possible with the same care that would be bestowed upon him if the university had only a single student. It is an axiom in educational work that the higher the grade of such work, the greater the cost per capita. It costs less per capita to maintain the primary schools than the grammar schools, less per capita to maintain the grammar schools than the high schools, less per capita to maintain the high schools than the colleges, and very much less per capita to maintain the colleges than the universities. At every stage the causes that produce the increase of expense are the same, and they work with increasing force the higher one proceeds in the scale. Broadly stated, they are, as has already been indicated, that the range of studies open to the student body increases as the student advances on his path, and that the demands of the student upon the teacher call constantly for a higher grade of work and for more individual work. In addition to these two causes, there is, as one approaches the university, an increasing necessity for large outlay for apparatus. It may easily cost as much to carry on a single research in physics that will be conducted by one or two men as to provide laboratory instruction in physics for a large school of boys. A college needs a good reference library and a collection of standard books as large as may be readily had. It does not need a library for historical research nor for philological study, nor in general the exhaustive collections of books that become immediately important in any subject the moment even a single student undertakes to pursue his topic with the thoroughness of a trained investigator. How much it can cost to provide such opportunities in even a single line of study may be easily understood. When it is recalled that the duty of a university is to afford such opportunities around the whole circle of human knowledge, the mind is prepared to appreciate how very costly such an enterprise must be.

Thus far I have been dealing simply with the material side of the question. It goes without saying that a great investigator cannot be trained by things alone. He must come into contact with the spirit of research embodied in a living man. Such men, for the most part, are the ablest men to be found among the ranks of teachers. Ordinarily, they can command the highest salaries. In these days, a larger number of men are needed to cover thoroughly any one of the great fields of knowledge than was the case a generation ago. The tendencies that have shown themselves in the industrial world in the minute division of labor, in the scholarly world have revealed themselves no less strikingly in the direction of specialization. No one man, therefore, is any longer an authority on the whole of a great subject. For example, it is rare to find a man who is at the same time an acknowledged authority on the philology and on the literature of any one of the great languages. In the days when philology was less developed, it was easy for a man to deal with the literature of a language and also satisfactorily enough with the language itself. In our day it is not so, and in my observation, at least, the characteristics of mind which lead a man to take deep interest in philological questions are distinctly unfriendly to what may be called the natural and spontaneous enjoyment of the literary productions of the languages, such as any man who is able to read is capable of responding to. This, however, is only by way of illustration. The fact is undisputed that a university, in order to respond to the reasonable demands of advanced students in these times, must ordinarily provide not one man only, but several men, in order to secure adequate treatment of all sides of any great department of knowledge. No such comprehensive attitude towards literature or science or philosophy is expected of a college. The university, on the other hand, is still short of the ideal, in which such privileges cannot be had.

This leads me to say a few words in further explanation of my conception of a university, for it must be admitted that in our American usage of the word, it does not stand for anything capable as yet of explicit definition. This is the less remarkable because it means a different thing in England from what it means in France, and a different thing in France from what it means in Germany, and in the other countries of Europe that have adopted the German conception and model. I have said enough already to make it clear that the university, in the sense in which I have been speaking of it, is a comparatively new thing in the United States. It is natural, therefore, that even among educators, the word should have an uncertain significance, until with the lapse of time a common usage has been developed. It is well understood that the American college was, in its origin, the child of the English college. The different conditions to which it has been exposed have modified the American college so that it is no longer exactly like its prototype. Nevertheless, in aim and in essence it is the same thing, a school for liberal education. The English university is a collection of English colleges. Its educational relation to the colleges is not greatly felt on the side of instruction. There are indeed a few university lecturers whom members of the colleges may listen to if they desire, but, for the most part, the instruction is given in the colleges and very largely by individual tutors. The university conducts the examinations and grants the degree, and thus, as it were, establishes the educational standard and places upon those who obtain the degree, the imprimatur of the university. The educational aim, however, is not changed because the degrees are given by the university rather than by the separate college. This is the English conception of a university. It is said, and with some reason, I think, that the present educational system of France, which dates from the first empire, was modeled after that which was ideally outlined in New York by the law establishing a University of the State of New York. This law was largely the product of the constructive genius of Alexander Hamilton. I do not know that the accuracy of this inference is susceptible of proof. It is said, nevertheless, that the law establishing the University of France, and declaring its relations to the educational system in France, is so like the law framed by Hamilton and his colleagues that it is difficult to escape the conclusion that the author of the French law was at least familiar with the

New York law. Only, in France, the law has been carried into active and efficient operation with all the authority of government behind it. In the State of New York, it has remained practically a dead-letter. By this scheme, all the educational institutions in the country are made a part of the University of France just as in the State of New York it is theoretically the case that all the institutions of the higher learning are made a part of the University of the State of New York. But in New York the theory has not been felt in practice and each institution has worked out its own salvation as best it might. This, then, is the French conception of a university. Thus it is clear that the university about which I have been talking is neither the English conception of a university, nor the French, even though the French conception exists in counterpart by statute in the laws of the State of New York. The result both of the English and of the French system has been to lead to the development of literature and scientific research chiefly outside of the universities. In Germany, on the other hand, we find a university system developed which has brought the student into close personal contact with the profoundest scholars of the country and the leaders of research in all directions of study. Thus the future teachers of Germany, and the future practitioners in all the learned professions as well, get their instruction and their preparation for their future work in an atmosphere as friendly as possible to the most thorough mastery of their own specialty and as friendly as possible to the development of original thinking and work upon their own part. This, I conceive, is the result that ought to be aimed at in the development of the American university. Naturally, the American university will not be exactly like the German university in all its details. It will have no such relation to the government, on the one hand, nor any such relation to the school system of the country, on the other. It will relate itself to the American college, which is an institution entirely American in its characteristics and as necessary and useful to-day as it ever has been in the long history of the country. Nevertheless, the aim which the German university has set before itself and which it has very largely realized under the conditions natural to German life, is the aim, in my judgment, which the American university also should set before itself and which it must realize under the conditions natural to American life. Because, after all has been said, the world is ruled by its thinkers, and civilization is carried forward by the patient investigators of natural laws; the lives of men are largely shaped by the teachings of experience as revealed by historic study; and the literature of men is enriched by every addition to our knowledge of the literature and language of the past. Nature's craftsmen in all these directions will produce results according to their gifts outside of a university if they get no opportunity within it. But the history of Germany clearly shows that the opportunity to serve mankind along such lines is much enlarged, if to train such men is the chosen aim of the university; in part, because in that case, the university affords the material apparatus by the aid of which the natural thinker or investigator can best do his work, and, most of all, because in a university so constituted, the atmosphere of the place and the spirit of the men who work there are friendly to such labors.

I am ready now to point out what I conceive to be the second great service which the Johns Hopkins University has done for the higher education in the United States. The American college has not itself made great scholars, for that was not its aim. It has, however, produced sound scholarship up to a certain point, and it has awakened in many a desire for more learning than the college itself could satisfy. Such students, in large numbers, during the last half century have gone to Europe to complete their studies. It is noticeable that they have gone in a far larger stream to Germany than either to England or to France. This circumstance demonstrates, I think, that it is in Germany that the need is best met which Americans feel who desire to be thorough scholars and to become masters of their subject. The Johns Hopkins University set itself to demonstrate that such opportunities could be given in the United States by an institution deliberately adopting that aim and conducting its work with reference thereto. The older American colleges, like Harvard and Columbia, were in no way blind to the necessity of providing such opportunities. As I have already intimated, as early as 1857 the Trustees of Columbia College endeavored to make a movement in that direction. They were ahead of the times, however, at that date, and furthermore, they were embarrassed by the difficulty of adding to an educational establishment that had grown up with other aims a new something that should represent this different ideal. It is the glory of the Johns Hopkins University, as I conceive, that you perceived not only that the new departure was timely, but also that a new institution was better able to make it than any of the older ones. The work of the Johns Hopkins University has been so successful that, by slow degrees and after much effort, several of the older foundations, and among them Columbia, are working now with the same aim as distinctly and as intelligently as yourselves.

The problem at such a university as Columbia is a very different one from yours in Baltimore. In the conception of a German university, all knowledge is comprehended in four faculties—the faculty of theology, the faculty of medicine, the faculty of law and the faculty of philosophy. It is clear at a glance that the first three faculties are faculties that train men for the learned professions. The scope of each one is roughly indicated by its name. The faculty of philosophy includes all other knowledge—philosophical, linguistic, scientific, historical, and the like. The Johns Hopkins University, having its opportunity to choose, has established here, in the first instance, a faculty of philosophy. It did not pretend to cover the whole of the field covered by the faculty of philosophy in such a university, for instance, as that of Berlin. It did aim to cover well whatever portion of the field it entered into. That has been its wisdom and the chief reason, I think, of its acknowledged success. Very recently it has begun to offer instruction on the scientific side of medicine in connection with the Johns Hopkins Hospital, which is now in operation. You will perceive that behind the university's instruction in medicine there is the same purpose of developing a scientifically trained student, so that the practitioner shall be not merely a good practitioner, but a thoroughly trained student in his profession. Having the opportunity to start afresh, the Johns Hopkins University has wisely, I think, placed their medical school upon a university basis by demanding a college education as a pre-requisite for admission. This is not to say that a good doctor cannot be made without a college education, but it is to say that the duty of the university to the medical profession is not fully performed until it stands firmly, first of all, for a broadly developed man, and then for a broadly developed man scientifically trained in all matters pertaining to his profession. It is clear that, if the Johns Hopkins University will adhere to this wise policy, it will one day develop a university as nearly complete as the means at its command will permit and as American conditions will sustain.

I do not know to what extent the theological faculty will become a part of our American universities. More and more I expect to see the theological schools affiliated to the universities by some such system as prevails, for instance, at Columbia. But I do not yet foresee the time when theology can be studied in this country with the same spirit of free inquiry as American public sentiment supports in relation to medicine, law and general knowledge. At Columbia, Dr. Hastings, the President of the Union Theological Seminary, sits in our University Council, without a vote, but with the privilege of the floor, by virtue of an arrangement under which the educational opportunities of both institutions, where they touch each other, are made available for a single fee to the students of each. Arrangements somewhat similar in character, though less complete, exist between Columbia College and the General Theological Seminary (Episcopal) and the Jewish Theological Seminary as well. By such an arrangement as exists with the Union Theological Seminary, the university obtains the advantage of the theological point of view in shaping its educational policy; it contributes to the scholarly equipment of many students of theology, and obtains for its own students the privilege of attending, as electives, such courses in the theological seminary as may appeal to them. Both libraries, also, are open to the students of each institution on the same terms. In the meanwhile, the university escapes all the controversies which at one time or another are apt to show themselves in connection with theological education. The plan also is adaptable at large. The same university can, if it wishes, enter into the same arrangements with more than one seminary.

At Columbia the historic American college had surrounded itself with professional schools in medicine, law and applied science before the new ideal peculiar to the university, as I have outlined it, became a recognized part of its polity. Our undertaking, therefore, is not simply to create, but also to transform. We do not desire to destroy the historic college which has contributed so many famous names to American history and whose endowments are the basis of all the university development that Columbia can command. We do, however, desire to relate the college to the university in such a way as to benefit the college work proper and the university work which is to follow it, whether under the faculty of philosophy or under any of the professional

faculties. We do desire further to lift, as we can, the standard of instruction in the professional schools, until at last they shall all be upon a university plane. For such a problem as this, time is as evidently necessary as in the working out of your own problem, and money, also, in untold sums, is essential before a satisfactory result can be reached.

That is one reason why I think that both the Johns Hopkins and Columbia are fortunate in being located in cities. Men who are able to give freely for education, as a rule, are much more likely to give with an open hand to an institution that they see and an institution which reflects credit, or even glory, upon the city in which they live than they are to give to educational institutions at a distance of which they know little except by the hearing of the ear. So far as educational benefactions come from men who are themselves college bred men, their gifts are not unlikely to go to their Alma Mater; but it is an interesting circumstance that men who have not themselves enjoyed the privilege of education are at least as likely as others to establish great educational foundations. Such men, more and more, I believe, will give to the institutions in the cities that have this new aim, and to the university of their own city in particular. I may be reminded that a citizen of New York has been the largest contributor to the University of Chicago. This is true, but, so far as it traverses my argument, it may be safely said to be an exceptional case. In the meanwhile, these splendid gifts are developing a university on the right lines in the great inland city of the Union. Already that city has met the gifts from outside, large as they have been, dollar for dollar within the city, and one need not be a prophet nor the son of a prophet to be confident that, among the universities of the country dependent upon private foundations, none are more sure of support from the wealth of the city about it than the University of Chicago. I like to think that the same thing is true of Columbia College. It stands in the midst of the greatest accumulation of wealth to be found in the country, and this wealth is largely in the hands of generous givers. The university has only to deserve support at the hands of the city in order to receive it. The same thing ought to be true *pro tanto* of the Johns Hopkins University. Baltimore is not so large or so wealthy a city as either New York or Chicago, but nevertheless it is a historic city, an important city, and a wealthy city. Already the Johns Hopkins University has shown what can be accomplished with the gift of a single citizen of Baltimore. When the city of Baltimore takes this university to itself and makes its renown a matter of civic pride, then the Johns Hopkins University, like these others, can expand its work to the full measure of the opportunity afforded to it by the city.

But cities contribute to universities factors of the utmost value other than direct gifts. I doubt a great deal, for example, whether the Johns Hopkins University could have made the name it has if the Peabody Library had not been at its service during all these years. The great libraries to be found in cities, accessible to the competent student, are important contributions to the successful work of a university. Museums of all kinds may be made to contribute to its efficiency. In New York, for example, Columbia gives courses of public lectures on art every winter at the Metropolitan Museum of Art, using, as far as possible, the objects to be found in the Museum by way of illustration. At the American Museum of Natural History Columbia gives public lectures every winter on scientific subjects. Both of these institutions in return place their entire collections at the service of professors and competent students of Columbia for investigation and research. Columbia thus is able to avail itself of artistic and scientific collections that could not be acquired directly for the university without an outlay of many millions of dollars. In the meanwhile, by this relation to the Museums, Columbia adds to the public collections both a greater popular value and a greater scientific value. Its public lectures enable the people to understand and appreciate the collections in the Museums better than they otherwise could, while its use of the collections for investigation and research adds to their scientific value. Columbia College has similar relations with the Cooper Union, maintaining there a series of lectures every winter open to the public. These lectures are delivered in courses and are intended for instruction rather than for amusement. The Cooper Union, from the nature of the case, is unable to give anything in return except that it gives the room without charge. But Columbia believes that it is discharging a legitimate part of the work of an American university when it brings to the public the opportunity of hearing competent people on scientific, historical, economic and literary subjects. It is, if you please, simply the old Lyceum lecture delivered in courses; but it is also more than that, for it makes the people of the city of New York appreciate that the university is of consequence to them as well as to the comparatively few who are enrolled among the ranks of its students. The opportunities in every city for such alliances between the university and other institutions of a public character in the city are always numerous, and, in some cities, they are almost limitless. I believe it to be, from every point of view, sound policy for the university to welcome these alliances rather than to hold aloof. The American problem is not the German problem. The German universities are able to pursue their aim with the authority of the State behind them Further than this, the learned professions and the profession of teaching are open only to graduates of the university. In the United States, the universities that are the most highly developed do not have the authority of the State behind them, neither do they hold exclusive command of the portals that open into the profession of the teacher or into any of the so-called learned professions. While, therefore, the American university should set before itself, as I think, the same aim which has made the German university so powerful an instrument for the service of humanity, the American university must nevertheless realize this aim under conditions that are very different. Our endeavor must be to offer opportunities for costly research, which, from the nature of the case, can be availed of directly by only a few students out of a vast population, and this we must do in the midst of a democratic community. A democratic community naturally believes in education, and to that extent our environment is favorable, but a democratic community is tempted to draw the line in education at the point where the masses are seen to profit by it. Therefore I am of the opinion that if our universities expect permanently to maintain the sympathy of the people in the developments upon which they have recently entered, they must, for their part, demonstrate to the people that this sort of study by the few is, without doubt, of the utmost service to the multitude. Such a faculty of philosophy as you have established in Baltimore becomes the natural school for teachers in the colleges and the high schools of the country. Even in Germany, they speak of the faculty of philosophy as the professional school for teachers. It is remarkable to what an extent the Johns Hopkins University has already fulfilled this function. This sort of service, I am sure, the people of the United States are able to understand; but it will also be wise for the universities, I am confident, to enter into as close practical relations with the life of the cities in which they may be located as the circumstances of each case permit. When I dream of Columbia and its possibilities, I always think of a university not only great enough to influence the life of New York, but of a university able to influence the life of New York because it is itself a part of it, and therefore able to understand it and to minister to it. Time would fail me were I to attempt to point out the many lines upon which a city university can come into helpful contact with the life of the city. I am persuaded that each university should study its own problem. It is no longer possible, if it ever was, for any one university to be foremost around the whole circle of human knowledge. The same university will excel at different times in different departments, but if a university strives to absorb that which is characteristic in the life of the city in which it does its work, I am persuaded that every city university will have a flavor of its own that will draw to it persistently the men who want that thing. For instance, New York is the gateway of the Union. There we see illustrated, among other things, in ways that are unique, the problems that arise from the vast immigration into this country. Columbia College has established a chair of sociology, in part to study the problem in the large, but also in part to read and translate to the people of the United States the book which the city of New York spreads out before our eyes. Similarly, Chicago is the great railroad centre of the United States. If I were shaping the destinies of the University of Chicago, I should strive night and day to acquaint the people of the United States with the terms of that problem, in the confident hope that some day there should come forth from the University of Chicago a man who would be of immense service to the country in connection with this question. Here in Baltimore you are face to face, as no other city university in the United States is or is likely to be, with the race problem. If we are not to look to the Johns Hopkins University for light and guidance upon that problem, to what university in the country shall we look? If we cannot look to the universities of the country for light upon these great problems, are not the universities of the country failing to perform their part in enabling the people of the United States to deal intelligently with the great questions of our day?

In other words, I plead for a recognition on the part of the university of the importance of current life. I would not detract by a syllable from the value to the country of research in science, or in history, or in political economy, in medicine, in law, in theology, in literature, or in anything else, but I do believe that if the American universities wish to enjoy the opportunity permanently to carry on such researches as these, they must illustrate to the people at all times the value of such re-earches by making them tributary to the advancement of the best civilization of the day. I do not mean to imply that the university must itself apply the law which the university discovers. That is the business, if you please, of the statesman, the inventor and the practical man. But the university must set itself to discover the truth if it can, and to publish it, upon the great questions of current importance in the life of the country and of mankind, not less earnestly, not less intelligently, and not less thoroughly, than it applies itself to the study of questions of other sorts. Therefore, I believe, again, in a city university because it is in the midst of the activities of city life. The tendencies of our time are to crowd the population into cities more and more. The mere crowding of people together creates problems that become more and more difficult to handle, by reason of their magnitude; but the ingathering of people in the cities, if it makes problems, also develops the forces with which to handle the problems. The strongest men in every department of life turn to the cities, in our day, as naturally as the river flows to the ocean. There is no exception to this law, in my judgment, in the domain of education. Special circumstances may keep special men in small places; but the law is, I have no doubt, that the city universities can command their pick of the men who are to teach, with an increasing certainty as compared with institutions not located in the city. If a university is made great by its men, this advantage which pertains to the city university would be decisive in our day. There is no solitude like that of a crowd, and it is certain that the man who is determined to have it can enjoy as great opportunity for reflection in the city as in the country. The average man may not find it in the city, but the university is not made great by average men. La Grange and La Place carried on their immortal investigations into the problems of celestial mechanics in Paris during the Reign of Terror and the troublous years that immediately preceded and followed it. On the other hand, the atmosphere of the city is vital with energy, so that a man in any department of life is kept constantly at his best by contact with his fellows. The influences that proceed out from a city are felt far and wide. Cities are the natural reservoirs of power, as the mountain chains are the natural water-sheds of a country. A university located in a city, therefore, occupies the position from which its influence can proceed farthest and with the least resistance. The fame of it is carried on the four winds as a part of the reputation of the city itself.

It seems to me a happy practice, this habit of yours in Baltimore, to identify Washington's Birthday with a consideration of some of the large interests that concern a university. It reminds us Americans of the interest that Washington himself took in the foundation of a national university that should be worthy of the American name. It is inspiring to realize how clearly the fathers of the Republic appreciated, not only the familiar truth that the foundations of a free state must be imbedded deep in popular intelligence, but also the other truth, equally indisputable, but far less familiar, that popular intelligence cannot be maintained at a high level by any system of schools, public or private, which is not continually supplied with new power, and fresh inspiration from those ancient springs of learning and investigation, the universities. It is well understood, as I have said, that the university is not only different in type in different countries, but also that within the same country it has been marked by different characteristics at different periods. Nevertheless, whatever may be its type in any country, or whatever may have been its predominant characteristics at any time, the university has always and everywhere been a school for the perpetuation of the accumulated knowledge of the race and for development of its highest scholarship according to the conceptions of the time. The singular thing is, that the men who founded this Republic in the midst of conditions so new, and where everything was so completely undeveloped, should have discerned with such unfailing sagacity the importance to the country of the development here of institutions of the highest learning.

Every decade since the formation of the government has added to the importance of cities in their relation to the destinies of the Republic. I count those Americans happy, therefore, who, during their student days at the university, become familiar with the atmosphere and life of a city. They are likely always to be able to serve their country better in later life, because they know something about one of these busy centres of human industry and activity. And I count it a circumstance for profound and patriotic gratitude that, in these closing years of the century, great universities are being developed here and there in our American cities, within which to train the natural leaders of the best and most disinterested thought of the times. Happy is the democracy whose broad door of opportunity opens to its humblest member, through the public school and the university, an undisputed right of way to the highest eminence of human knowledge and the widest domains of human thought.

MEETINGS OF THE ALUMNI ASSOCIATIONS.

GENERAL ALUMNI ASSOCIATION.

The Alumni Association met in Baltimore, at Lehmann's Hall, on February 22, at 7 p. m. The following report of the meeting has been furnished by the Secretary:—

The Ninth Annual Meeting was called to order by the President, E. R. L. GOULD, Ph. D.

The report of the Treasurer, duly approved by the Auditing Committee, was presented.

The following clause was added to the Constitution, Article III, Sec. 1:

Clause 3.—"*Any person who, being more than twenty-one years of age, has been a student at the Johns Hopkins University for at least one year, may, on nomination of two members in good standing, be elected to membership by the Executive Committee, provided, that one negative vote shall be sufficient to defeat any candidate. Such members shall not be eligible for offices in the Association, but shall be entitled to all the other rights and privileges of membership. But no person who is at the time of such nomination a student of the University shall be eligible to membership unless he shall have already received a degree from the University.*"

Article III, Section 1, Clause 1, of the Constitution, was amended so as to read as follows:

Clause 1.—"*All persons who have taken a degree, or received certificates of proficiency in Electrical Engineering at the Johns Hopkins University, shall be eligible to membership, and upon payment of the annual dues shall be considered active members of the Association.*"

The ballot for officers and elected members of the Executive Committee resulted in the selection of the following: President, ALLAN MCLANE, A. B., '86; Secretary, GEORGE LEFEVRE, A. B., '91; Treasurer, HENRY O. THOMPSON, A. B., '87.

Elected members of the Executive Committee for the term 1895-1897: E. R. L. GOULD, Ph. D., '86; PAUL J. DASHIELL, A. B., '87, Ph. D., '91; WILLIAM S. HILLES, A. B., '89; GEORGE C. MORRISON, A. B., '90; HARRY T. MARSHALL, A. B., '94.

GEORGE C. MORRISON, A. B., '90, who had drawn the short term as one of the members of the Alumni Advisory Committee, was elected to succeed himself.

After the meeting, dinner was served, and about fifty Alumni sat down together. The retiring President, E. R. L. GOULD, Ph. D, read telegrams of greeting from the Alumni Associations in Chicago and Boston, and afterward called upon several of those present for speeches.

The Executive Committee at its first meeting elected E. R. L. GOULD, Ph. D., Vice-President, and appointed a committee to consider a resolution on the question of allowing voting by mail, which was offered by Mr. ROBINSON. Messrs. W. B. D. PENNIMAN and C. W. SAMS were duly nominated for qualified membership, and were elected by the Executive Committee.

Members of the Association are earnestly requested to urge all Alumni who have not already joined the Association to become members.

The New England Association of the Alumni.

The New England Association met in Boston February 22. A telegram of congratulation was sent to the President of the University and the following message to the meeting in Baltimore:

BOSTON, MASS., *February* 22, 1895.

Johns Hopkins Alumni Association:

Thirty-six Johns Hopkins men at dinner in Boston send loving greetings to the Alma Mater and to the brethren celebrating commemoration day in Baltimore.

JOHNS HOPKINS CLUB OF NEW ENGLAND.

The First Annual Report (1894–95) of this Association has recently appeared. It contains a report of the preliminary meeting and of the first annual meeting and dinner in May, 1894, with the poem of Dr. Richard Burton, read on that occasion.

The following list of the members of the New England Association is reprinted from the report:

The New England Association of Johns Hopkins Alumni.

ALLEN, EUGENE THOMAS (Ph. D., '92). Assistant in Chemistry, Harvard University. *Arlington, Mass.*

ALLINSON, FRANCIS GREENLEAF, (Ph. D., '89). Associate Professor of Ancient Languages, Williams College. *Williamstown, Mass.*

AMES, JOHN GRIFFITHS, JR. (A. B., '94). Graduate Student, Harvard University. *Cambridge, Mass.*

BAYLEY, WILLIAM SHIRLEY (A. B., '83, Ph. D., '86). Professor of Geology, Colby University. *Waterville, Me.*

BEVAN, WILLIAM LLOYD (A. B., '86). Rector of Trinity Episcopal Church. *Concord, Mass.*

BIGELOW, ROBERT PAYNE (Ph. D., '92). Instructor in Zoology, Massachusetts Institute of Technology. *Boston, Mass.*

BLACK, J. W. (A. B., '88, Ph. D., '91). Professor of History, Colby University. *Waterville, Me.*

BUCHER, J. E. (Ph. D., '94). Instructor in Organic Chemistry, Tufts College. *Tufts College, Mass.*

BUMSTEAD, HENRY ANDREWS (A. B., '91). Instructor in Physics, Yale University. *New Haven, Conn.*

BURNHAM, WILLIAM HENRY (Ph. D., '88). Instructor in Pedagogy, Clark University. *Worcester, Mass.*

BURTON, RICHARD (Ph. D., '88). Literary Editor, "Hartford Courant." *Hartford, Conn.*

CLARKE, SAMUEL FESSENDEN (Ph. D., '79). Professor of Natural History, Williams College. *Williamstown, Mass.*

COAR, HENRY LIVINGSTON. Instructor in Mathematics and German, Harvard University. *Cambridge, Mass.*

CONE, CHARLES MORRIS (Graduate Student, '78–'80). Treasurer Hartford Woolen Company. *Hartford, Vt.*

CONN, HERBERT WILLIAM (Ph. D., '84). Professor of Biology, Wesleyan University. *Middletown, Conn.*

COOK, ALBERT S. (Associate, '79–'81). Professor of the English Language and Literature, Yale University. *New Haven, Conn.*

COUNCILMAN, WILLIAM T. (Associate Professor, '88–'92). Professor of Pathological Anatomy, Harvard University. *Harvard Medical School, Boston, Mass.*

COWLES, EDWARD (Fellow by Courtesy, '87–'88). Superintendent McLean Hospital. *Somerville, Mass.*

CREHORE, A. C., (Graduate Student, '90–'91). Assistant Professor, Dartmouth College. *Hanover, N. H.*

DANIELS, ARCHIBALD LAMONT (Fellow, '83). Professor of Mathematics, University of Vermont. *Burlington, Vt.*

DEWEY, DAVIS RICH (Ph. D., '86). Professor of Economics and Statistics, Massachusetts Institute of Technology. *Boston, Mass.*

DIPFOLD, GEORGE THEODORE (Instructor, '83–'84). Assistant Professor of Modern Languages, Massachusetts Institute of Technology. *Boston, Mass.*

EDES, RICHARD EDWARD (A. B., '89). Student, Harvard Medical School. *Boston, Mass.*

EICHELBERGER, WILLIAM SNYDER (A. B., '86, Ph. D., '91). Instructor in Mathematics and Assistant in Astronomy, Wesleyan University. *Middletown, Conn.*

FIELD, GEORGE WILTON (Ph. D., '92). Associate Professor of Cellular Biology, Brown University. *Providence, R. I.*

FILES, GEORGE T. (Graduate Student, '89–'90). Instructor in German, Bowdoin College. *Brunswick, Me.*

GARDNER, HENRY BRAYTON (Ph. D., '90). Associate Professor of Political Economy, Brown University. *Providence, R. I.*

GILMAN, BENJAMIN IVES (Fellow, '81). Curator, Museum of Fine Arts. *Boston, Mass.*

GOODWIN, CHARLES JAQUES (Ph. D., '90). Tutor in Greek, Wesleyan University. *Middletown, Conn.*

GREEN, D. I. (Ph. D., '93). Secretary, Organized Charities. *Hartford, Conn.*

HALL, EDWIN HERBERT (Ph. D., '80). Assistant Professor of Physics, Harvard University. *Cambridge, Mass.*

HALL, G. STANLEY (Professor, '82–'88). President of Clark University. *Worcester, Mass.*

HARTWELL, EDWARD MUSSEY (Ph. D., '81). Director of Physical Training, Boston Public Schools. *Boston, Mass.*

HASTINGS, CHARLES S. (Associate and Associate Professor, '76–84). Professor of Physics, Sheffield Scientific School of Yale University. *New Haven, Conn.*

HAYNES, GEORGE HENRY (Ph. D., '93). Professor of History and Political Science, Worcester Polytechnic Institute. *Worcester, Mass.*

HAZEN, CHARLES D. (Ph. D., '93). Professor of History, Smith College. *Northampton, Mass.*

HOCH, CHARLES AUGUSTUS (Graduate Student, '89–'92). Pathologist and Assistant Physician, McLean Hospital. *Somerville, Mass.*

HODGE, CLIFTON FREMONT (Ph. D., '89). Assistant Professor of Physiology, Clark University. *Worcester, Mass.*

HOPKINS, A. J. (Ph. D., '91). Instructor in Chemistry, Amherst College. *Amherst, Mass.*

HOUGH, THEODORE (A. B., '86, Ph. D., '93). Instructor in Physiology, Massachusetts Institute of Technology. *Boston, Mass.*

JACQUES, WILLIAM WHITE (Ph. D., '79). Electrician, American Bell Telephone Company. *Boston, Mass.*

JAGEMANN, HANS CARL GUNTHER VON (Ph. D., '84). Assistant Professor of Germanic Philology, Harvard University. *Cambridge, Mass.*

JAMESON, JOHN FRANKLIN (Ph. D., '82). Professor of History, Brown University. *Providence, R. I.*

JONES, F. R. (Graduate Student, '92–'94). Organized Charities. *Hartford, Conn.*

KINNICUTT, LEONARD P. (Graduate Student, '79). Professor of Chemistry, Worcester Polytechnic Institute. *Worcester, Mass.*

KIMBALL, ARTHUR LALANNE (Ph. D., '84, Associate Professor, '84–'90). Professor of Physics, Amherst College. *Amherst, Mass.*

LANMAN, CHARLES ROCKWELL (Fellow, '76–'77, Associate, '77–'80). Professor of Sanskrit, Harvard University. *Cambridge, Mass.*

LOVE, JAMES LEE (Graduate Student, '84–'85). Instructor in Mathematics, Harvard University. *Cambridge, Mass.*

MAHONEY, JAMES (Graduate Student, '87–'88). Junior Master, English High School, Boston. *Boston, Mass.*

MANNING, HENRY PARKER (Ph. D., '91). Instructor in Mathematics, Brown University. *Providence, R. I.*

MARCOU, PHILIPPE B. (Instructor, '80–'84). Instructor in Romance Languages, Harvard University. *Cambridge, Mass.*

MATHER, FRANK JEWETT, JR. (Ph. D., '92). Instructor in English, Williams College. *Williamstown, Mass.*

MILLIS, FRANK EDWARD (Graduate Student, '87–'88, '91–'92). Professor of Physics, Bates College. *Lewiston, Me.*

NEWHALL, BARKER (Ph. D., '91). Instructor in Greek, Brown University. *Providence, R. I.*

NOYES, WILLIAM (Fellow, '84). Assistant Physician, Hospital for Inebriates. *Foxboro', Mass.*

PAINTER, CHARLES FAIRBANK (A. B., '91). Student, Harvard Medical School. *Boston, Mass.*

PALMER, ALBERT DEFOREST, JR. (Graduate Student, '91–'93). Instructor in Physics, Brown University. *Providence, R. I.*

PASSANO, LEONARD MAGRUDER (A. B., '89). Instructor in Mathematics, Massachusetts Institute of Technology. *Boston, Mass.*

PECK, JAMES INGRAHAM (Graduate Student, '88–'90). Assistant Professor of Biology Williams College. *Williamstown, Mass.*

PHINZY, BOWDRE (Graduate Student, '92–'93). Student, Harvard Law School. *Cambridge, Mass.*

PRATT, WALDO SELDEN (Fellow, '79). Professor of Ecclesiastical Music and Hymnology. *Theological Seminary, Hartford, Conn.*

ROSA, EDWARD BENNETT (Ph. D., '91). Professor of Physics, Wesleyan University. *Middletown, Conn.*

ROYCE, JOSIAH (Ph. D., '78). Professor of Philosophy, Harvard University. *Cambridge, Mass.*

SANFORD, EDMUND CLARK (Ph. D., '88). Assistant Professor of Psychology, Clark University. *Worcester, Mass.*

SEDGWICK, WILLIAM THOMPSON (Ph. D., '81, Associate, '81–'83). Professor of Biology, Massachusetts Institute of Technology. *Boston, Mass.*

SHARPE, B. F. (Graduate Student, '91–'94). Fellow, Clark University. *Worcester, Mass.*

SIETSON, CARLTON BEECHER (Graduate Student, '85–'86). Professor of Greek, Colby University. *Waterville, Me.*

STOKES, WILLIAM R. (Graduate Student, '91). Pathologist, City Hospital, Boston. *St. Botolph Hall, Boston, Mass.*

STONE, JOHN STONE ('88–'90). Electrician, Bell Telephone Experimental Works. *Boston, Mass.*

STORY, WILLIAM E. (Associate Professor, '83–'89). Professor of Mathematics, Clark University. *Worcester, Mass.*

STRICKLER, EMERSON H. (A. B., '94). Graduate Student, Massachusetts Institute of Technology. 151 *Worcester St., Boston, Mass.*

TABER, HENRY (Ph. D., '88). Assistant Professor of Mathematics, Clark University. *Worcester, Mass.*

THOMAS, DOUGLAS HAMILTON, JR. (A. B., '93). Student, Massachusetts Institute of Technology. *Boston, Mass.*

TOWER, SAMUEL F. (Graduate Student, '87–'88). Junior Master, English High School. *Boston, Mass.*

TUPPER, FREDERICK, JR. (Ph. D., '93). Professor of Modern Languages, University of Vermont. *Burlington, Vt.*

WARREN, HENRY C. (Graduate Student, '79–84). *Cambridge, Mass.*

WILLIAMS, WILLIAM KLAPP (A. B., '86, Ph. D., '89). *Boston, Mass.*

WRIGHT, CHARLES BAKER (Fellow, '85). Professor of English Literature, Middlebury College. *Middlebury, Vt.*

WRIGHT, JAMES HOMER (A. B., 90). Assistant in Pathology, Harvard University. *St. Botolph Hall, Boston, Mass.*

WRIGHT, JOHN HENRY (Professor, '86–87). Professor of Greek, Harvard University. *Cambridge, Mass.*

The Northwestern Association of the Alumni.

The Northwestern Association of the Alumni met in Chicago. The following telegram was sent to the Association in Baltimore:

Chicago, *February* 22, 1895.

President of the Alumni, Johns Hopkins University.

The Northwestern Association of the Johns Hopkins Alumni here assembled sends greeting to the common mother.

A. H. Tolman, *Secretary.*

The report of the meeting has been furnished by the Secretary:

Chicago, Ill., *February* 23, 1895.

President D. C. Gilman:

My Dear Sir.—I will write you a brief account of the Fourth Annual Meeting of the Northwestern Association of the Johns Hopkins Alumni, at Chicago, February 22d, 1895. The meeting was held at the Hotel Windermere, on 55th St., opposite Jackson Park.

The present membership of the association is confined to the States of Illinois, Wisconsin, Iowa, Minnesota, North Dakota, and South Dakota. The total membership is: Active Members, 70; Associate Members, 20; Honorary Members, 3.

Twenty-five active and associate members attended the meeting, which was called to order by the President of the Association, Professor A. V. E. Young, of the Northwestern University, Evanston, Ill. It was voted that Michigan and Indiana be added to the States included in this association. Persons residing in those States who have either taken a degree or held a fellowship at Johns Hopkins will please send their names to the new Secretary, Mr. Rosenthal. Other persons who have studied at the University are eligible to election as associate members.

The following officers were elected for the ensuing year: *President*, Professor J. H. T. Main, Iowa College, Grinnell, Iowa; *Vice-President*, Professor Starr W. Cutting, University of Chicago; *Secretary and Treasurer*, Lessing Rosenthal, A. B., Room 602 First National Bank Building, Chicago.

After luncheon a full and interesting letter from President Gilman was read, putting before the association some facts concerning the recent history and present condition of the University.

Professor Richard G. Moulton, of the University of Chicago, who was present as the guest of the association, addressed the members upon the subject, "English and American Universities." Professor Moulton prefaced his remarks by saying that he received a cordial welcome to America at Johns Hopkins University, and that in his journeyings here he had constantly met the men and the influence of Johns Hopkins. The address itself was of exceptional interest, and was warmly applauded.

Yours sincerely,

A. H. Tolman, *Secretary.*

The Northwestern Association of Johns Hopkins Alumni.

Aber, William M. (Graduate Student, 1884-85). Graduate Student, University of Chicago. *Chicago, Ill.*

Almy, Frank F. (Graduate Student, 1890-93). Professor of Physics, Iowa College. *Grinnell, Iowa.*

Annis, Burleigh S. (Fellow, 1892-93). Instructor in Mathematics, Northwestern University. *Evanston, Ill.*

Bain, Harry F. (Graduate Student, 1891-93). Iowa Geological Survey. *Des Moines, Iowa.*

Bechtel, Edward A. (A. B., 1888, Fellow, 1891). Instructor in Latin, Northwestern University. *Evanston, Ill.*

Bell, Louis (Ph. D., 1888). General Electric Co., Monadnock Building. *Chicago, Ill.*

Bemis, Edward W. (Ph. D., 1885). Associate Professor of Political Economy, University of Chicago. *Chicago, Ill.*

Bernhard, Adolph (A. B., 1889). Assistant in Chemistry, University of Chicago. *Chicago, Ill.*

Bolza, Oskar (Reader, 1888-89). Professor of Mathematics, University of Chicago. *Chicago, Ill.*

Bice, Hiram H. (A. B., 1889). Instructor, High School. *St. Joseph, Mo.*

Bruner, James D. (Ph. D., 1894). Professor of Romance Languages, University of Illinois. *Champaign, Ill.*

Bryan, James E., Jr. (A. B., 1890). Superintendent of Schools. *Litchfield, Ill.*

Cole, Aaron H. (Graduate Student, 1888-89). Graduate Student, University of Chicago. *Chicago, Ill.*

Colton, Buel P. (Graduate Student, 1881-83). *Champaign, Ill.*

Conklin, Edwin G. (Ph. D., 1891). Professor of Zoology, Northwestern University, *Evanston, Ill.*

Crew, Henry (Ph. D., 1887). Professor of Physics, Northwestern University. *Evanston, Ill.*

Cutting, Starr W. (Ph. D., 1892). Associate Professor of German, University of Chicago. *Chicago, Ill.*

Dewey, John (Ph. D., 1884). Professor of Philosophy, University of Chicago. *Chicago, Ill.*

Donaldson, Henry H. (Ph. D., 1885). Professor of Comparative Neurology, University of Chicago. *Chicago, Ill.*

Eckels, William A. (Graduate Student, 1886-87, 1889-93). Professor of Greek, Ripon College. *Ripon, Wis.*

Egge, Albert E. (Ph. D., 1887). Instructor in English, Iowa State University. *Iowa City, Iowa.*

Fifield, James C. (A. B., 1887). Attorney at Law. *Minneapolis, Minn.*

Finley, John H. (Graduate Student, 1887-89). President of Knox College. *Galesburg, Ill.*

Fossum, Andrew (Ph. D., 1887). Professor of Greek, St. Olaf College. *Northfield, Minn.*

Fowler, Frank H. (Graduate Student, 1890-91). Fellow, University of Chicago. *Chicago, Ill.*

Graham, Robert O. (Ph. D., 1888). Professor of Chemistry and Geology, Illinois Wesleyan University. *Bloomington, Ill.*

Grant, Ulysses S. (Ph. D., 1893). Assistant Geologist, Geological Survey of Minnesota. *Minneapolis, Minn.*

Hancock, Arthur (Matriculate, 1891-93). Student, University of Chicago. *Chicago, Ill.*

Hancock, Harris (A. B., 1888). Assistant in Mathematics, University of Chicago. *Chicago, Ill.*

Haskins, Charles H. (A. B., 1887, Ph. D., 1890). Professor of Institutional History, University of Wisconsin. *Madison, Wis.*

Hastings, Charles H. (Graduate Student, 1891-93). Graduate Student, University of Chicago. *Chicago, Ill.*

Hatfield, James T. (Ph. D., 1890). Professor of German, Northwestern University. *Evanston, Ill.*

Hendrickson, George L. (A. B., 1887). Professor of Latin, University of Wisconsin. *Madison, Wis.*

Hillyer, Homer W. (Ph. D., 1885). Assistant Professor of Organic Chemistry, University of Wisconsin. *Madison, Wis.*

Hobbs, William H. (Ph. D., 1885). Assistant Professor of Mineralogy and Petrology, University of Wisconsin. *Madison, Wis.*

Hubbard, Frank G. (Ph. D., 1887). Assistant Professor of English Literature, University of Wisconsin. *Madison, Wis.*

Huizinga, Abel H. (Ph. D., 1890). Adjunct Professor of Old Testament Literature, etc., McCormick Theological Seminary. *Chicago, Ill.*

Hussey, George B. (Ph. D., 1887). Docent, University of Chicago. *Chicago, Ill.*

James, James A. (Ph. D., 1893). Professor of History, Cornell College. *Mt. Vernon, Iowa.*

Jastrow, Joseph (Ph. D., 1886). Professor of Experimental Psychology, University of Wisconsin. *Madison, Wis.*

Kinley, David H. (Graduate Student, 1890-1892). Assistant Professor of Political Economy, University of Illinois. *Champaign, Ill.*

Lengfeld, Felix (Ph. D., 1888). Instructor in Chemistry, University of Chicago. *Chicago, Ill.*

Lingle, David J. (Ph. D., 1892). Instructor in Physiology, University of Chicago. *Chicago, Ill.*

Loomis, Hiram B. (Ph. D., 1890). Acting Assistant Professor of Physics, Northwestern University. *Evanston, Ill.*

Lyman, James A. (Ph. D., 1892). Instructor in Portland Academy. *Portland, Oregon.*

Main, John H. T. (Ph. D., 1892). Professor of Greek, Iowa College. *Grinnell, Iowa.*

MacMillan, Conway (Graduate Student, 1886-87). Professor of Botany, University of Minnesota. *Minneapolis, Minn.*

Matteson, Halsey B. (Graduate Student, 1891-92). Instructor, High School. *Oak Park, Ill.*

McClintock, William D. (University Scholar, 1880-82). Associate Professor of English Literature, University of Chicago. *Chicago, Ill.*

Metcalf, W. Vernon (Ph. D., 1890). Professor of Chemistry and Physics, Carleton College. *Northfield, Minn.*

Million, John W. (Graduate Student, 1891-92). Graduate Student, University of Chicago. *Chicago, Ill.*

Morrison, Alexander M. (Graduate Student, 1892-94). Assistant in Physics, University of Chicago. *Chicago, Ill.*

Muss-Arnolt, William (Ph. D., 1888). Instructor in Patristic Greek, University of Chicago. *Chicago, Ill.*

Nachtrieb, Henry F. (Fellow, 1884-85). Assistant Professor of Biology, University of Minnesota. *Minneapolis, Minn.*

Newhall, Charles W. (A. B., 1893). Instructor, Shattuck School. *Faribault, Minn.*

Nicholson, Peyton P. (Graduate Student, 1888-90). Professor of Natural History and Geology, Lawrence University. *Appleton, Wis.*

Noyes, Frederick B. (A. B., 1893). Student of Medicine, Northwestern University. *Chicago, Ill.*

Osborn, Henry L. (Ph. D., 1884). Professor of Biology and Geology, Hamline University. *Hamline, Minn.*

Poyen-Bellisle, René de (Fellow, 1892-93). Assistant in Romance Languages, University of Chicago. *Chicago, Ill.*

Price, Harry W. (A. B., 1885). Attorney at Law. *Chicago, Ill.*

Patrick, George T. W. (Ph. D., 1888). Professor of Philosophy and Didactics, Iowa State University. *Iowa City, Iowa.*

Richardson, Edwin G. (A. B., 1881). Rector, St. James's Episcopal Church. *Milwaukee, Wis.*

Rosenthal, Lessing (A. B., 1888). Attorney at Law. *Chicago, Ill.*

Russell, Harry L. (Ph. D., 1892). Assistant Professor of Bacteriology, University of Wisconsin. *Madison, Wis.*

SAUNDERS, ARTHUR P. (Ph. D., 1894). Instructor in Chemistry, University of Wisconsin. *Madison, Wis.*
SAWIN, ALBERT M. (Graduate Student, 1886–87). *Evanston, Ill.*
SCOTT, WILLIAM A. (Ph. D., 1892). Assistant Professor of Economics, University of Wisconsin. *Madison, Wis.*
SLAUGHTER, MOSES (Ph. D., 1891). Professor of Latin, Iowa College. *Grinnell, Iowa.*
SMALL, ALBION W. (Ph. D., 1889). Professor of Social Science, University of Chicago. *Chicago, Ill.*
STEELE, ROBERT B. (Ph. D., 1890). Professor of Latin, Illinois Wesleyan University. *Bloomington, Ill.*
STUDES, MARTIN B. (Ph. D., 1892). Chemist. *La Salle, Ill.*
SWAN, JOHN N. (Ph. D., 1893). Professor of Chemistry, Monmouth College. *Monmouth, Ill.*
TALBERT, GEORGE A. (Graduate Student, 1888–89). *La Porte, Ind.*
TIFFANY, HERBERT T. (A. B., 1882). *St. Paul, Minn.*
TOLMAN, ALBERT H. (Fellow, 1884). Assistant Professor of English Literature, University of Chicago. *Chicago, Ill.*
TURNER, FREDERICK J. (Ph. D., 1890). Professor of American History, University of Wisconsin. *Madison, Wis.*
VAN VELZER, CHARLES A. (Fellow, 1878–81). Professor of Mathematics, University of Wisconsin. *Madison, Wis.*
VAN VLECK, EDWARD B. (Fellow, 1886–87). Instructor in Mathematics, University of Wisconsin. *Madison, Wis.*
VEA, MATTHEW M. J. (A. B., 1891). *Stoughton, Wis.*
VEBLEN, ANDREW A. (Graduate Student, 1881–83). Professor of Physics, Iowa State University. *Iowa City, Iowa.*
VEBLEN, THORSTEIN B. (Graduate Student, 1881–82). Tutor in Political Economy, University of Chicago. *Chicago, Ill.*
WALKER, MILO S. (Ph. D., 1894). Instructor, Racine High School. *Racine, Wis.*
WATASE, SHOZABURO (Ph. D., 1890). Instructor in Cellular Biology, University of Chicago. *Chicago, Ill.*
WATSON, EDWARD L. (A. B., 1891). Pastor, Hennepin Avenue M. E. Church. *Minneapolis, Minn.*
WEIDA, GEORGE F. (Ph. D., 1894). Professor of Chemistry, Blackburn University. *Carlinville, Ill.*
WHITMAN, CHARLES O. (Fellow, 1879). Professor of Zoology, University of Chicago. *Chicago, Ill.*
WILKENS, FREDERICK H. (A. B., 1884). Assistant Professor of German, University of Wisconsin. *Madison, Wis.*
WILLIAMS, WILLIAM H. (Fellow by Courtesy, 1883–84). Professor of Hebrew and Sanskrit, University of Wisconsin. *Madison, Wis.*
WINSTON, AMBROSE P. (Graduate Student, 1891–92). Graduate Student, University of Chicago. *Chicago, Ill.*
YOUNG, ABRAM V. E. (Fellow, 1878–80). Professor of Chemistry, Northwestern University. *Evanston, Ill.*

The Honorary Members of the Association are President W. R. HARPER, of the University of Chicago (Levering Lecturer, 1892), Professor R. G. MOULTON, of the University of Chicago (Lecturer, 1890–91), and Professor R. T. ELY, of the University of Wisconsin (Instructor, Associate, and Associate Professor, 1881–92).

THE NEW YORK ASSOCIATION OF ALUMNI.

A reception was given to President GILMAN by the New York Society of the Alumni, at the Hotel Brunswick, on the evening of March 29th.

The officers of the Association are: WALTER H. PAGE, President; DANIEL W. HERING, First Vice-President; CHARLES A. BOSTON, Second Vice-President; JAMES H. HYSLOP, Third Vice-President; MORRIS PUTNAM STEVENS, Treasurer; CHARLES H. LEVERMORE, Chronicler; BENJAMIN TUSKA, Secretary.

WALTER H. PAGE, Esq., Editor of the *Forum* (a Fellow in the year 1876–78), presided, and in a brief address introduced President GILMAN as the guest of the evening.

President GILMAN took for his theme "The Inside View of a University," and made this the occasion for an address in which he surveyed the aspects of the country and of science during the last twenty years, and, afterwards, the relations of the Johns Hopkins University to the problems of higher education. He spoke of the wonderful impulse that has been given to university work by the munificent gifts of individuals and by the appropriations of legislatures, especially in the Western States. He spoke of the boldness of the reforms instituted in one of the newest foundations, Cornell University, under the leadership of Andrew D. White, and in the oldest college, under the leadership of Charles W. Eliot.

More potent than money or than leaders has been the progress of science, the effects of which are felt in every branch of learning. Philology, archæology, history, economics, psychology, are all taught in these days by rigorous scientific methods. Investigation and inquiry are prosecuted in "seminaries," just as laboratory methods are dominant (in contrast with lecture methods) in physics, mechanics, electricity, chemistry, geology, pathology, physiology, and other subjects. The outside world is hardly aware how great these changes are, what costly outlays are requisite, what abilities are required in the leading teachers of every department of knowledge.

In all this progressive work the Johns Hopkins University claims to have had its share. It began with the distinct purpose of aiding in the advancement of knowledge as well as in the education of youth. Its funds were not expended in showy buildings, but in salaries, books and apparatus. It claimed that nothing should be rejected because it was old, and nothing because it was new; that literature and science, the works of nature and the works of man, were all worthy of profound study; that there was no hostility between the different branches of knowledge, and none between knowledge and religion. It is for others to say what results have followed from the work of the Johns Hopkins University. It would be easy to give statistics, to name the professors who have here taught, the scholars who have here been trained, the scientific researches which have here been carried forward, the books and periodicals which have proceeded from this society of scholars. Others must make this review. But in a company of Johns Hopkins men it is enough to say that the work at Baltimore is now in progress with increased vigor. Within a short period a laboratory for geological and mineralogical work has been organized. An admirable hall devoted to the general library and to the study of literature and history has been opened. More important still, the Johns Hopkins Medical School has begun its instructions under an able faculty, who receive none as candidates for the degree of doctor of medicine unless they have had a previous college training, and then offer to them a systematic course, four years in length, in which laboratory work is a characteristic feature, with opportunities, as the work progresses, for observing the treatment of the suffering in the great hospital which was also founded by Johns Hopkins.

Professor N. M. BUTLER, of Columbia College, followed President GILMAN, and spoke in graceful terms of the influence which the Johns Hopkins University has exerted on other universities in every part of the land.

AMERICAN CHEMICAL JOURNAL.

CONTENTS OF VOLUME XVII, No. 4, APRIL, 1895.

Argon, a New Constituent of the Atmosphere. By LORD RAYLEIGH and WILLIAM RAMSAY.
On the Spectra of Argon. By WILLIAM CROOKES.
The Liquefaction and Solidification of Argon. By K. OLSZEWSKI.
On the Atomic Weight of Oxygen. Synthesis of Weighed Quantities of Water from Weighed Quantities of Hydrogen and of Oxygen. By EDWARD W. MORLEY.
On the Chloronitrides of Phosphorus. By H. N. STOKES.
On the Saponification of the Ethers of the Sulphonic Acids by Alcohols. By J. H. KASTLE and PAUL MURRILL.
Contributions from the Chemical Laboratory of Harvard College: LXXXVI. *On the Cuprammonium Double Salts.* By THEODORE WILLIAM RICHARDS and GEORGE OENSLAGER.
Basswood-Oil. By F. G. WEICHMANN.

A Reagent to replace Hydrogen Sulphide in Qualitative Analysis.

This Journal appears ten times yearly. Price $4.00 per year.

AMERICAN JOURNAL OF MATHEMATICS.

CONTENTS OF VOLUME XVII, Nos. 1 and 2.

Sur une transformation de mouvements. Par PAUL APPELL.
Extrait d'une lettre adressée à M. Craig. Par M. HERMITE.
On the First and Second Logarithmic Derivatives of Hyperelliptic Functions. By OSKAR BOLZA.
Sur la définition de la limite d'une fonction. Exercice de logique mathématique. Par G. PEANO.
Theorems in the Calculus of Enlargement. By EMORY MCCLINTOCK.
On Foucault's Pendulum. By A. S. CHESSIN.

A Method for Calculating Simultaneously all the Roots of an Equation. By EMORY MCCLINTOCK.
Sur le logarithme de la fonction gamma. Par CH. HERMITE.
Sur la pression dans les milieux diélectriques ou magnétiques. Par P. DUHEM.
On Ternary Substitution-Groups of Finite Order which leave a Triangle unchanged. By H. MASCHKE.

This Journal appears quarterly. Price $4.00 per year.

SCIENTIFIC NOTES.

On a Legend of the Alban Lake told by Dionysius of Halicarnassus.

By Kirby F. Smith.

(Abstract of a paper read before the University Philological Association, Jan. 18, 1895.)

The methods used by the ancient writers in dealing with the early history of the Roman Commonwealth are now too well understood to require any comment in detail. The final result of their labors as seen on the pages of Livy and Dionysius, however interesting it may be to the student of folk-lore, national character or literature, brings small comfort to the admirer of history as a truthful record of events. The early Roman Annalist found himself in a position peculiarly difficult. His own lack of training in the investigation of materials for history was only equalled by the poverty in such materials. Furthermore, while the legends of Rome distinctly connected her with the old mother city of Alba Longa, while the story of Romulus and Remus was a national possession, the tale of Aeneas was a stranger. But it could not be set aside by the patriotic historian, for at the close of the second Punic war it assumed, as Nissen[1] has observed, a distinctly political importance. Hence the early Annalists were confronted with the problem of so adapting the Aeneas story as to agree with and form a part of the native legends, which were too well known to be ignored. The task was difficult, and constantly grew more so as the years went on and investigation developed in scope and accuracy. One of the most vexatious questions arose when chronology began to assert its claims. It was then discovered that between the fall of Troy and the foundation of Rome was a gap of about three hundred years. To bridge this chasm was devised the list of Alban kings from Ascanius to Amulius, in its finally accepted form the latest and most evident forgery in the whole story. The investigators who first discovered this formidable hiatus perhaps contented themselves with the statement that there had been a royal house at Alba through which the blood of Aeneas was transmitted to the founders of Rome. It is a significant fact that the list of Alban kings, fully equipped with names and dates—and not much else—does not emerge until the fortunes of the Roman State were bound up with the personal interests of a family which claimed descent from Anchises and Venus. Mommsen[2] is undoubtedly correct in his conjecture that the person most respon-ible was Alexander Polyhistor; his literary habits are plainly reflected in the list of Alban kings as we now find it in the surviving writers.

The general consensus of critics that this list originated in Greek literature and is a pure invention is undoubtedly correct, or nearly so. It seems hardly necessary to dwell on the arguments establishing that conclusion.[3] Historical details are limited to brief notices attached to the names of three kings. Tiberinus was drowned in the river Albula, after which it was called the Tiber. Aventinus was buried on the Mons Aventinus; hence its name. Both of these stories are, of course, aetiological, and may be summarily dismissed. The third king, variously named, was an impious tyrant. He imitated thunder and lightning; therefore the god slew him with a real thunderbolt. It is this story which I wish to examine in detail, taking as a b.sis the narrative of Dionysius, who in prose is the chief exponent of the Aeneas legend. His account (*Antiq. Rom.*, 1, 71, 3 ff.) is as follows:

"And after Agrippa came Allodius, who reigned nineteen years, a monster of tyranny and hated of the gods; for, scorning the divine powers, he fashioned imitations of lightning and loud noises resembling claps of thunder, with which he thought to terrify men as if he were a god. But tempests and thunderbolts rushed down upon his dwelling and, the lake having risen to an unwonted height, he and all his house were overwhelmed and destroyed. And to this day, if the lake is clear in a certain quarter, whenever the flow of water from the source subsides and the depths are undisturbed,[4] the ruins of porticoes and other traces of a dwelling are still visible."

The limits of an abstract do not allow any detailed treatment of the other versions of this story. The narrative of Diodorus Siculus[5] is practically identical. Zonaras[6] says nothing of a stroke of lightning, while the *Origo Gentis Romanae*[7] does not mention the existence of ruins. The Excerptor of Diodorus (*Ek.* 7, *Frag.* 7) stops with the death of the king by lightning, and the same may be said of all the remaining versions of the story.[8]

When we compare these different statements of the legend we notice among other things the variation in the name of the king.[9] It also becomes evident that the different narrators felt that the important point in this story was the fact that the king, whatever his name was, was struck by lightning. It is the one thing which they all have in common. Livy, indeed, has nothing else. He has cautiously reduced the legend to the lowest terms compatible with existence. Others again add the reason why he was blasted. He was impious. He defied the gods. One need not confine himself to the classics for parallels to this story. In all countries and times the signal retribution of blasphemy or impiety has always been esteemed the thunderbolt.[10] Still a third class specify the sort of blasphemy of which he was guilty. He imitated thunder and lightning. Here it, of course, takes no great penetration to observe a likeness to the Salmoneus legend. (*Apollod.*, 1, 7).

But Dionysius and Diodorus relate the most important part of the story in telling us how the lake rose and overwhelmed Allodius and all his house, and how, to this day, the ruins of that house are sometimes to be seen at the bottom. Every one will at once be reminded of those legends of submerged cities and palaces told of in all parts of the world.[11] Thirlwall[12] many years ago drew attention to the kin-ship of the Allodius story with this group of legends, but so far as I have been able to discover, no one since then has either mentioned his name in this connection or, indeed, made the slightest reference to the same point in this version.

Did Polyhistor or Castor or some such person invent this portion of the Allodius story on the analogy of something similar in Greek,[13] and was it current only among those who read or copied the author? Or, on the other hand, is it an ancient folk-legend of the Alban Lake, fitted into this portion of so-called Roman History? If we really needed to be convinced that the latter was the case we might appeal to the legend which is still current in the neighborhood of the Lago Albano. Thirlwall had it from his young guide, who told it as follows: "Where the lake now lies there once stood a great city. Here, when Jesus Christ came into Italy, he begged alms. None took compassion on him but one old woman, who gave him two handfuls of meal. He bade her leave the city; she obeyed; the city instantly sank and the lake rose in its place."

No one, I am sure, will claim a literary origin for this story, however remote. In fact, investigation will show it to be nearer the original than

---

[1] *John's Jahrb.*, 91, p. 384. Schwegler, *Röm. Gesch.*, 1, p. 305 ff.

[2] *Röm. Chron.*, p. 156. Polyhistor was afterwards abetted by Castor. There was also a considerable mass of tradition in the time of the Cæsars originating in certain private families, not to mention other matters suggested by grammatical and antiquarian research. Fragments are still visible in the Servian Commentary to Vergil. See Cauer, *Röm.. Aeneassage*, p. 141 ff.

[3] For example, the variations in different lists, the suspiciously ritualistic appearance of the number 330, the unusual exactness in dates coupled with a noticeable reticence of historical details, the names themselves, which, as Schwegler (*Röm. Gesch.*, 1, p. 343 n. 2) says, are "sehr wohlfeil zusammengebettelt," etc.

[4] *σταστερός*. The Alban Lake is fed from the bottom by gushing springs. Cobet's emendation to *φαιερός* (*Obs.* p. 134) is quite unnecessary, as at least every hill-dweller would be aware.

[5] *Book* 7, *Frag.* 5, from the Armeolan Version of the Chronicle of E sebius.

[6] 7, 1, *D.*

[7] 18, 2, Jordan, *Hermes* 3, 421 ff, shows this work to be a forgery of the fifth or sixth century. The parade of references in it is, of course, not to be taken seriously. This is merely Ancient Learning in her second childhood.

[8] Livy, 1, 3, 10; Ovid, *Met.* 14, 616 and *Fast.*, 4, 49, (each time with a different authority before him). The other versions are either fragmentary or extremely brief. Dion Cass. (Tzetzes *ad Lycoph.*, 1250), Appian (*Photius*), Chron. of Eusebius (*Hieron.*), Syncellus, p. 148, Casiodorius, *Χρονογραφίων Σύντομος*, *Excerpta Latini Barbari*, Chron. of 354 (*Mommsen*, p. 649).

[9] Romulus, Remulus and Aremulus are practically identical. (See Preller-Jordan, *Röm. Myth.*, 2, 336, n. 2 and 283, n. 4). Amulius is probably suggested by another tyrant near by (Cp. the "Tarcymius" of the *Exc. Lat. Barb.*). The identity of Allodius and Amulius has been pointed out by Trieber, *Die Königstafel von Alba Longa*, Hermes, 29, 159.

[10] Hundreds of people in this country to-day would be prepared to give examples if not names and dates. See, for instance, the *Arena* for December, 1894, page 711 ff.

[11] Legends of this sort might be cited to an almost indefinite extent—*Sipylus*, *Buris*, *Helice* from classical antiquity, *Vineta* in modern times, etc., etc. See, for example, Grimm, *D. M.*, 981 ff., *D. S.* Nos. 22 and 153, Bassett, *Legends of the Sea*, with references, etc.

[12] *Literary Remains*, Vol. 3, pp. 189–210.

[13] Tantalus, also punished for impiety, was closely connected with Sipylus.

is Dionysius. The Lago Albano lies in the crater of an extinct volcano, and has no visible natural outlet. It is surrounded by an unbroken ring of rock, the lowest point of which is 240 feet above the present surface of the lake, itself nearly 2,000 feet above the level of the sea. It is six miles long and nearly 500 feet deep. How did such a large hole get here, and how did there come to be a lake in it? The primitive philosopher usually answers such questions as these with a story. And judging from similar stories, we may be sure that in this case it was not an incident connected *with* the lake, as in Diodorus and Dionysius, but that, like the modern legend, it accounted for the very existence of the lake itself and the peculiar configuration of the surrounding country.

"Here was once a table-land," said the old legend, "and upon it a city"—one is tempted to believe the Alba Longa of a tradition to be as unsubstantial as the palace of Allodius—"this city or some king of it was impious; the land sank[1] with it, making a great hole; a lake rose and covered it up. The ruins of that city or palace may still be seen at the bottom when the water is clear."

Everyone knows the inveterate habit the Roman Annalists had of rationalizing the legends with which they had to deal. It seems to me that the observed fact of an ancient rise and fall of the Alban Lake[2] has determined the direction in which this story of Allodius was rationalized by the authorities of Diodorus and Dionysius. They set the palace of the impious king on the *banks* of the lake, which was reasonable enough; they made the water rise and engulf him and his palace, which was also reasonable enough; but in saying that the porticoes, etc., of that palace may still be seen in the *bottom* of the lake, they were inconsistent with the story they had started to tell. In this oversight a hint of the old story is perhaps preserved.

In most of these legends of submerged cities it is to be observed that the immediate cause of submersion, if any is alleged, is divine retribution for blasphemy or impiety. The same has already been pointed out with reference to the thunderbolt. Hence I believe that we are justified in the inference that the narrative of Diodorus and Dionysius is a *contaminatio* of two stories originally distinct, but both of them consecrated as recounting the signal vengeance of heaven for impiety, and hence their juxtaposition here. The portion still current in the modern version is a local folk-legend of the Alban Lake, going back to an immemorial antiquity and imperfectly rationalized in the version of Dionysius. The story of the lightning has a suspicious resemblance to the legend of Salmoneus, especially when we recollect that the activity of Polyhistor lies largely in the period when this narrative first appears. With almost characteristic perversity, however, the Roman writers selected the cheap invention of a third-rate annalist and rejected the less improbable and only fragment of genuine Italic tradition relieving the deadly barrenness of the list of Alban kings so religiously repeated by all loyal supporters of the imperial house of Cæsar.[3]

The Awntyrs of Arthur at the Terne Wathelyne. A Middle-English Romance. By Dr. W. H. Browne.

(Abstract of a paper read before the University Philological Association, October 19, 1894.)

The date of composition of this poem was later than that of the alliterative *Morte Arthure*, and probably at the close of the fourteenth or beginning of the fifteenth century. Although the phraseology strongly resembles the latter poem, it is not by the same author, nor is it by the author of *Susan* or *Gawayne*. The place of its composition seems to have been in the west of England, near the Scottish border. It commemorates two adventures of Gawayne, rather awkwardly joined together.

Several editors consider this a Scottish poem, but not on sufficient grounds. As it is not in any Scottish dialect that we know, is not ascribed by any early writer to a Scottish poet, and bears no internal evidence of Scottish origin, the burden of proof rests on those who make the assertion. The hypothesis that the original dialect has been changed by a Northumbrian scribe, is without proof. The sympathy of the poet is adverse to the Scottish champion, who is defeated, while his adversary is represented in the most advantageous light. The action of both adventures is laid in Cumberland, with which the poet seems familiar, while his Scottish geography is vague. Carlisle, a city specially odious to the Scots, is represented as Arthur's northern capital. Taken altogether, the indications point to a Cumbrian origin.

Aristotle on the Faults of Poetry; or Poetics XXV in the light of the Homeric scholia. By Mitchell Carroll.

(Abstract of a paper read before the University Philological Association, December 21, 1894.)

The faulty interpretation of many doubtful passages in Aristotle's Poetics, c. xxv., which considers the objections of critics to poetry and the principles on which they are to be answered, has been the natural result of a lack of appreciation of the intimate connection of the chapter with the rest of the Poetics and with the Porphyrian[1] *ζητήματα* in the Homeric scholia, of which the *προβλήματα Ὁμηρικά* of Aristotle and his followers were a source. The design of the *προβλήματα Ὁμηρικά* was to consider and answer the criticisms and censures of Homer by philosophers and sophists—an aim similar to that of the chapter under consideration—and the fragments preserved to us, more extensive perhaps than heretofore recognized, furnish numerous illustrations of the principles briefly stated in the Poetics. In the light of these scholia it becomes evident that the chapter contains the elements of a systematic treatment of the faults of poetry in general and the inconsistencies of Homer in particular. This is indicated by the following analysis:—

Aristotle begins by laying down certain general propositions as a basis for the consideration both of *ἐπιτιμήματα*, or sources of objections of critics, and of *λύσεις* or solutions of objections (1460 b 5–23). These have reference to:—

A. *The objects of representation.* The poet, being an imitator, as the painter or any other artist, must represent either actual occurrences (*οἷα ἦν ἢ ἔστιν*), or current traditions and beliefs (*οἷά φασιν καὶ δοκεῖ*), or the 'higher reality,' the universal, the ideal (*οἷα εἶναι δεῖ*).

B. *The means of representation.* The vehicle of expression is language, which employs either ordinary terms, or rare terms, or metaphors; besides, many modifications of language are conceded to poets.

C. *The standard of correctness in poetry.* This is not the same as the standard of correctness in the art of politics, or in any other art or science. In poetry there are two kinds of fault possible—those which affect its essence, and those which are accidental. If the representation of the poet is faulty through want of ability (*ἀδυναμία*), the error is inherent in the poetry; but if merely the poet's conception of what he proposes to represent be incorrect, if, e. g., he has represented a horse advancing both right legs at once, or has introduced technical inaccuracies, in medicine or in any other art, the error is not essential but accidental, as in the *μίμησις* the demands of art could be fully met.

I. The *Ἐπιτιμήματα*.

Aristotle expressly mentions five sources of objections (1461 b 22–24). Things are censured either (1) as impossible, *ὡς ἀδύνατα* (cf. Poet. 1451 b 18, 1460 a 27, 1460 b 24, schol. Por. Γ 144, Δ 105–111, E 7, etc.), or (2) as irrational, *ὡς ἄλογα* (cf. Poet. 1454 b 6, a 13, 1460 b 29, schol. Por., A 63, Γ 122, M 25, et al.), or (3) as hurtful to morals, *ὡς βλαβερά*, or (4) as contradictory, *ὡς ὑπεναντία* (schol. Por., A 52, B 844, Ξ 434, et al.), or (5) as contrary to artistic correctness, *ὡς παρὰ τὴν ὀρθότητα τὴν κατὰ τέχνην*.

In addition, the scholia recognize (6) the incongruous, *ἀπρεπῆ* (schol. Por., A 18, A 31, I 186, et al., cf. Poet. 1454 a 30, 1459 b 33), (7) the absurd, *ἄτοπα* (schol. Por., Δ 297, I 591, K 194, et al., cf. Poet. 1460 a 2, a 35), (8)

---

[1] The idea of sinking land might easily be suggested by the observed effects of volcanic action. The legend of Curtius (Livy, 7, 6), the *Campus Ignifer*, the *Ludi Tarentini*, certain details of ritual to the infernal gods, etc., show how late was the cessation of such activity in the old Roman territory.

[2] Traces of it are visible on the banks, not to mention the famous prehistoric *Emissarium*, by which to this day the water is kept at its present level. Livy's account of its origin (5, 19) is doubtless a folk-tale.

[3] The legend told by Dionysius has been utilized by Baffico in a short story: "Fascino Arcano." *Nuova Antologia*, 47, p. 244.

[1] The fragments of Porphyry's *Ζητήματα Ὁμηρικά* have been collected and edited by Hermann Schrader, in two volumes: Porphyrii Quaes[tt] Hom. ad Il. · · · Reliq., Leipzig, 1880, and Porph. Quaes[tt] Hom. ad Od. . . . Reliq., Leipzig, 1890. Citations from the schol. Por. are from these volumes.

the inconsistent in character, *ἀνώμαλα* (schol. Por., Σ 198, λ 489, cf. Poet. 1454 a 32), and (9) the inexpedient, *ἀσύμφορα* (schol. Por., Ζ 234 Λ 405, ι 106).

II. The twelve *Λύσεις*.

Aristotle states that the number of *λύσεις* treated in the chapter is twelve (1461 b 24, 5). The precise determination of the twelve meant, however, has given the editors trouble, as is seen in the attempts of Twining, Hermann, Susemihl and Ritter, the last of whom Teichmüller and Vahlen follow.

In the following classification, which, with two exceptions, agrees with Ritter, I state the twelve *λύσεις*, as drawn from the three general propositions, and indicate, where feasible, their applications as illustrated by the scholia.

I. *Λύσεις from a consideration of artistic correctness.*

I. The end of poetry (*εἰ τυγχάνει τοῦ τέλους τοῦ αὐτῆς*, 1460 b. 22 sq.) is the object of appeal in answer to censures of representations as *ἀδύνατα*, *ἅλογα*, *βλαβερά* (cf. 1461 b 10, 21); e. g., the pursuit of Hector, which contains elements regarded as highly improbable and impossible (cf. 1460 a 15, schol. Por., Χ 205).

II. To the accidental (*κατὰ συμβεβηκός*, 1460 b 30–32) are to be referred all technical inaccuracies affecting other arts and sciences. It is a less serious matter not to know that a hind has no horns than to paint one inartistically.

2. *Λύσεις from a consideration of the objects of imitation.*

III. The ideality peculiar to poetry (*οἷα εἶναι δεῖ, ἀλλ' ἵσως δεῖ, τὸ βέλτιον* (1460 b 33 sq., 1461 b 10 sq.), which is aesthetic rather than moral, can be urged if the fault consists in the representation not being true to fact (*μὴ ἀληθές*) or not possible. Thus Sophocles said that he represented men as they ought to be (*οἷους δεῖ* sc. *εἶναι*); Euripides men as they are.

IV. To current legends and traditional beliefs (*οἷα φασὶ καὶ δοκεῖ, οὔτω φασίν, πρὸς τὴν δόξαν, πρὸς ἃ φασι*, 1460 b 35, 1461 b 9 sq.), an appeal is made if the representation is censured as neither idealistic nor true (*οὔτε βέλτιαν . . . . οὔτ' ἀληθῆ*), or not possible, or not rational; e. g., the poetic representations of the gods. Cf. schol. Por., Τ 108 . . . *τὸ μὲν οὖν ὅλον μυθῶδες· καὶ γὰρ οὐδ' ἀφ' ἑαυτοῦ ταῦτά φησιν "Ὅμηρος, οὐδὲ γινόμενα εἰσάγει, ἀλλ' ὡς διαβεβομένων περὶ τὴν Ἡρακλέους γένεσιν μέμνηται . . . οὕτως Ἀριστοτέλης.* Cf. schol., Σ 489, Υ 67.

V. In case the aesthetic ideality of a representation is questioned, what actually occurred or the custom, (*οἷα ἦν ἢ ἔστι, οὕτως εἶχεν*, 1461 a 2) is made the object of appeal. The example cited is Il. Κ 152, *ἔγχεα δέ σφιν Ὀρθ' ἐπὶ σαυρωτῆρος ἐλήλατο*, on which cf. the schol. Por.: *φαύλη δοκεῖ εἶναι ἡ τῶν δοράτων ἐπὶ σαυρωτῆρος στάσις· καὶ δὴ πανταχοῦ θόρυβον ἦδη πεποίηκε νύκτωρ ἐν μόνον πεσόν. λύει δ' Ἀριστοτέλης λέγων ὅτι τοιαῦτα ἀεὶ ποιεῖ "Ὅμηρος οἷα ἦν τότε. ἦν δὲ τοιαῦτα τὰ παλαιὰ οἰάπερ καὶ νῦν ἐν τοῖς βαρβάροις· πολλοὶ δὲ οὕτω χρῶνται τῶν βαρβάρων.* Kindred passages are schol. Por., Κ 194, Ψ 269, Ω 15, 16. In the *ζητήματα* of the scholia this appeal to the custom receives a technical designation, *ἀπὸ τοῦ ἔθους*, and serves for the removal of objections to passages regarded as containing (1) *ἀδύνατα* (schol. Por., Γ 379, Ε 7, Κ 11, Κ 447, ζ 221), (2) *ἀπρεπῆ* (schol. Por., Β 8, Ι 203, γ 72), (3) *ὑπεναντία* (schol. Por., Β 827, Α 2, κ 103, 4), (4) *ἄτοπα* (schol. Por., Δ 297).

There follows a remark finding its occasion in what has been said of the requirements of the poetic representation: *περὶ δὲ τοῦ καλῶς ἢ μὴ καλῶς ἢ εἴρηται τινι ἢ πέπρακται οὐ μόνον σκεπτέον εἰς αὐτὸ τὸ πεπραγμένον ἢ εἰρημένον βλέποντα εἰ σπουδαῖον ἢ φαῦλον ἀλλὰ καὶ εἰς τὸν πράττοντα ἢ λέγοντα πρὸς ὃν ἢ ὅτε ἢ ὅτῳ ἢ οὗ ἢ ἕνεκεν, οἷον εἰ μείζονος ἀγαθοῦ, ἵνα γένηται, ἢ μείζονος κακοῦ, ἵνα ἀπογένηται*, 1461 a 4–10.

Teichmüller and Vahlen and Butcher refer this to the morality required in the representation of poetic characters and make it the sixth *λύσις* of their series, to meet the charge of *βλαβερά*. Comparison with kindred passages of the Poetics (1451 b 8 sq, 1454 a 33, 1461 b 19–22), study of Aristotle's use of *καλῶς* (1447 a 9, 10, 1453 a 12, b 25, 1459 b 11–13, cf. *καλλίστη* 1453 a 23, etc.), and of *σπουδαῖος* and *φαῦλος* (in such passages as 1449 b 17, 1451 b 36, 1461 b 31, 1460 a 37, 1462 a 9), and examination of numerous applications in the scholia, show that the passage refers to the poetically good or bad, and emphasizes the relativity of judgment required in its treatment. As it is not illustrated by an example, as the *λύσεις* proper are, and for other reasons, I do not regard it as a *λύσις*, but as a general observation which emphasizes the poetic demand of perfect conformity of words and actions to the characters (*ἤθη*) of those speaking or acting, and which brings in application the first or the third *λύσις*.

In the extensive application of this principle of relativity in the scholia we find that it is usually employed in answer to strictures on the deeds and words of Homeric heroes, and that the *πρὸς ὃν* and the *ὅτε ἢ ὅτῳ ἢ οὗ ἕνεκεν* have each received a technical designation—the first, *ἐκ* or *ἀπὸ τοῦ προσώπου* or *τῷ προσώπῳ*; the second, *ἐκ* or *ἀπὸ τοῦ καιροῦ* or *τῷ καιρῷ*.

Ἐκ τοῦ προσώπου, is applied to the explanation of (1) *ἀπρεπῆ* (schol. Por., Α 42, ζ 244, ι 5, λ 489), (2) *ἅλογα* (schol. Por., Γ 122, Μ 25, χ 412), (3) *ὑπεναντία* (schol. Por., Β 649, Ζ 265, Ζ 488, Ξ 434), etc.

Ἐκ τοῦ καιροῦ is used to explain (1) *ἅλογα* (schol. Por., Α 420, Γ 315, 16, Γ 365, Κ 194, Μ 25), (2) *ἀπρεπῆ* (schol. Por., Α 18, Α 42, Ι 186, Ι 203, Ι 453, Ι 591, ι 5, λ 489), (3) *ὑπεναντία* (schol. Por., Β 348, Δ 2, Υ 329, γ 20, γ 147, μ 374), (4) *ἀδύνατα* (schol. Por., Γ 379), (5), *ἄτοπα* (schol. Por., Ι 591), (6) *ἀσύμφορα* (schol. Por., Υ 67).

3. *Λύσεις from a consideration of the means of representation.*

Other objections, proceeds Aristotle, must be explained by looking at the language (*τὰ δὲ πρὸς τὴν λέξιν ὁρῶντα δεῖ διαλύειν*, 1461 a 10). The interpretation of the linguistic expression was the readiest and most frequently applied means for the solution of *προβλήματα*, as is shown by the scholia, in which it bears the technical designation *ἐκ τῆς λέξεως* and similar forms.

The following references indicate its varied application: (1) *ἀδύνατα* (schol. Por., Γ 144, Δ 105–111, Δ 491, Ε 7, Η 9, Θ 555), (2) *ἅλογα* (schol. Por., Α 62, Γ 121, Γ 365, Ε 341, Μ 25, χ 412), (3) *ὑπεναντία* (schol. Por., Α 3, Β 844, Δ 105–111, Ε 576, Ξ 434, ι 25, et al.), (4) *ἀπρεπῆ* (schol. Por., Α 31, Α 42, Α 211, Β 8, Β 82, Ι 203 et al.), (5) *ἄτοπα* (schol. Por., Δ 297), (6) *ἀσύμφορα* (schol. Por., Ζ 234, Λ 405, ι 106).

These passages afford ample illustration of the various *λύσεις* depending on a consideration of the *λέξις*, which Aristotle states, with examples, in the following order (1461 a 9, b 10):

VI. *γλώττῃ*, i. e., a solution by an appeal to the use of a rare term.

VII. *κατὰ μεταφοράν*, by an appeal to metaphor.

VIII. *κατὰ προσῳδίαν*, by a change in accent or breathing.

IX. *διαιρέσει*, by a change in punctuation.

X. *ἀμφιβολίᾳ*, by a study of the ambiguity of an expression.

XI. *κατὰ τὸ ἔθος τῆς λέξεως*, by an appeal to the custom of speech.

XII. Aristotle continues: *δεῖ δὲ καὶ ὅταν ὀνομά τι ὑπεναντιωμά τι δοκῇ σημαίνειν, ἐπισκοπεῖν ποσαχῶς ἂν σημήνειε τοῦτο ἐν τῷ εἰρημένῳ, οἷον τὸ "τῇ ῥ'ἔσχετο χάλκεον ἔγχος," τὸ ταύτῃ κωλυθῆναι ποσαχῶς ἐνδέχεται ᾠδί, ἢ ὡς μάλιστ' ἂν τις ὑπολάβοι. κ. τ. λ.* (1461 a 31 sq.).

This signifies that if a word causes contradiction, one is to examine the various possibilities of meaning in the word, or abide by one's first conception of it. Vahlen does not regard this as a *λύσις* but as the statement of a general principle of interpretation which, applied exclusively to *ὑπεναντία*, involves the special *λύσεις* from the language which have been just mentioned. I classify it as the twelfth *λύσις* treated in the chapter, and for the following reasons:—(1) It is illustrated by an example as the preceding eleven; (2) it corresponds in its sense and application to *ὁμωνυμία*, treated in Soph. El., IV, 1–3, as a *λύσις* from the language; (3) it is frequently employed in the scholia to explain difficulties—e. g. schol. Por., Ζ 488, Ξ 200, Ξ 434, etc.

The remaining section of the chapter (1461 b 10–21) contains general observations on the proper treatment of certain *ἐπιτιμήματα*.

Indirect Discourse in Anglo-Saxon. By J. H. Gorrell.

(Abstract of a dissertation presented for the degree of Doctor of Philosophy.)

There are two main divisions of this subject, (1) The Indirect Declarative Sentence, (2) The Indirect Interrogative Sentence. The general introductory particle to the indirect declarative sentence is the conjunction *þæt;* this conjunction is seldom omitted, and most instances of omission are due to the apparent breaking of connection between the governing verb and the dependent sentence by the presence of an intervening clause. In the use and position of the conjunction in complex Indirect sentences there is an observable effort to attain clearness and grace of style.

Indirect Declarative Sentences are grouped according to the character of the introductory verb: (1) After verbs of direct statement; (2) After verbs of thinking, believing, doubting, &c.; (3) After verbs of direct perception and of simple introduction. Of the first class there are two divisions: (1) Verbs of Simple Report; the usual mood in the dependent sentence is the subjunctive with the occasional use of the indicative when a truth is to be emphasized. The use of the indicative is largely on the increase in later Anglo-Saxon. (2) Verbs of saying with the subjective element of design or volition, as verbs of petition and command. The subjunctive or the periphrasis with *sculan* is almost universal in the dependent sentence.

The subjunctive is the usual mood after verbs of thinking, believing, &c., and the indicative is most consistently employed after expressions of direct perception.

Indirect Interrogative sentences admit of essentially the same grouping, with, however, the additional class of verbs of inquiry. Whenever the interrogative idea is distinctly in force the subjunctive is employed, hence this mood is almost universal after verbs of inquiry and when the introductory particle is *gif* or *hwæðer*. A distinct stylistic feature of Anglo-Saxon, especially of Alfred's writings, is the use of *hu* instead of the colorless *þæt*, especially in highly descriptive passages.

The most frequent uses of the auxiliary *sculon* in the Indirect Sentence are to express duty, command, prophecy, and custom, and to condition a statement as regards its objective truth. *Willan* is frequently employed to denote volition, promise, design, and prophecy. Both auxiliaries are rarely used to express the simple future. There is a large increase in the use of periphrases in later Anglo-Saxon instead of the earlier subjunctive.

In both the Indirect Declarative and Interrogative sentences there is a noticeable preference for the normal order of words in later Anglo-Saxon, though the Interrogative sentence is more consistent in the use of transposed order, owing to the conscious feeling for dependence. When the conjunction is omitted the normal order is universal.

The subject accusative is predominant after *hatan*, less frequent after other verbs of command; there is a special stylistic usage with verbs of Perception. A slavish imitation of the Latin accusative with infinitive is quite frequent in Alfred's Bede.

Passage from Indirect to Direct Discourse is very frequent in Anglo-Saxon and reveals a distinct adherence to the requirements of style, since this translation renders the language less cumbersome and more accurate, and lends a greater degree of vivacity to the narrative.

On the Etymology of the Term Ševâ. By C. Levias.

(Abstract of a paper read before the University Philological Association, October 19, 1894.)

It has been commonly held that the term *šəvâ* is connected with שוא *nothingness*. Mr. Levias reviewed the various etymologies suggested by scholars and came to the conclusion that the term is an infinitive of the verb יצב and that it is a translation of the Arabic *sukûn*.

The paper will appear in full in the American Journal of Philology.

On the Use of the Imperative in the Protasis of a Conditional Sentence. By C. Levias.

(Abstract of a paper read before the University Philological Association, October 19, 1894.)

Referring to a passage in the Babylonian Talmud, Qidd. 70 b, אי שיתיו שיתיו, in which passage the verb in the protasis seems to be syntactically attracted to the verb in the apodosis, Mr. Levias thought that the passage Job, 34, 16, where the Massora accentuates the word שמע on the penult, presented the same phenomenon of attraction.

It is, however, probable that the word אי in the Talmudic passage is not a conditional but precative particle, and that in Job, 34, 16, the Massora took אז to have a precative force.

On the Motion of a Physical Pendulum on the Surface of the Earth. By A. S. Chessin.

The physical pendulum here considered is a homogeneous rigid body of rotation oscillating about a fixed point (0) of its axis. The rotation of the earth about its axis is taken into consideration. Let ω be the angular velocity of this rotation. If the initial relative velocity of the pendulum be zero, the motion of its axis may be represented as composed of two simultaneous motions: (1) of the motion on a very flat closed conical surface, this surface having a plane of symmetry which would be the plane of oscillation of the pendulum but for the disturbance due to the rotation of the earth; and (2) of the rotation of this conical surface about the vertical of the point (0).[1] The conical surface being very flat, the first motion will appear to an observer as if it took place in a plane passing through the vertical of the point (0). The second motion then would be a rotation of this plane. In other words, it would seem as if the plane of oscillation of the pendulum rotated about the vertical of the point (0). In fact, as is well known, this is the form in which Foucault expressed the result of his famous experiment in the Pantheon. In that experiment the rotation of the plane of oscillation took place clockwise. But it must not be forgotten that the amplitude was very small and the form of the pendulum such that it little differed from a *mathematical* pendulum. The rotation of the plane of oscillation, or rather, as in reality there is no such plane, the rotation of the conical surface mentioned above may take place as well clockwise as contra-clockwise, and in a certain case may not take place at all.[1] This result is sufficiently interesting to try the experiment with a pendulum as defined in this note, giving it greater amplitudes than in Foucault's experiment and varying its construction. In the paper referred to, the angular velocity of the rotation of the conical surface or of the *apparent* plane of oscillation was found to be $N\omega$, where

$$N = -n_1 \sin\lambda + n_2 \cos\lambda \sin\varphi_0$$

$$n_1 = \zeta k'^2 + (1-\zeta)\, k'^2 - \frac{C}{2A}(1-2\zeta)\cos\theta_0$$

$$n_2 = \frac{\theta_0 - \frac{1}{2}\sin 2\theta_0}{\sin^2\theta_0}\left[\zeta k'^2 + (1-\zeta)\, k^2\right] + \frac{C}{2A}(1-2\zeta)\sin\theta_0$$

In these formulas $2\theta_0$ is the amplitude of oscillation; $k = \sin\frac{1}{2}\theta_0$; $k'^2 = 1 - k^2$; φ_0 the orientation of the pendulum ($\varphi_0 = \pm\frac{\pi}{2}$ when the pendulum starts in the plane of the meridian; the upper sign is to be taken if the pendulum be initially deviated towards the South, the lower if the intitial deviation were towards the North); C is the principal moment of inertia of the pendulum about the axis of symmetry in the point (0); A its principal moment of inertia about an axis perpendicular to the axis of symmetry in the point (0); λ is the latitude of the place; finally,

$$\zeta = \frac{1}{K}\int_0^K k^2 \sin^2 x dx.$$

It will be convenient to give ζ another form. To this purpose we may use the following formulas:

$$\int_0^K \sin^2 x dx = \int_0^1 \sqrt{\frac{x^2 dx}{(1-x^2)(1-k^2x^2)}} =$$

$$= \sum_{n=0}^{n=\infty} \frac{1.3.5\ldots(2n-1)}{2.4.6\ldots 2n} k^{2n} \int_0^1 \frac{x^{2n+2}\, dx}{\sqrt{1-x^2}}$$

$$= \frac{\pi}{2} \sum_{n=0}^{n=\infty} \frac{1.3.5\ldots(2n-1)}{2.4.6\ldots 2n} \cdot \frac{1.3.5\ldots(2n+1)}{2.4.6\ldots(2n+2)} k^{2n}$$

$$= \frac{\pi}{2} \cdot \frac{1}{2} F\left(\frac{1}{2}, \frac{3}{2}, 2, k^2\right)$$

$$K = \int_0^1 \frac{dx}{\sqrt{(1-x^2)(1-k^2x^2)}} = \frac{\pi}{2} \sum_{n=0}^{n=\infty} \left(\frac{1.3.5\ldots(2n-1)}{2.4.6\ldots 2n}\right)^2 k^{2n}$$

$$= \frac{\pi}{2} F\left(\frac{1}{2}, \frac{1}{2}, 1, k^2\right)$$

Hence

$$\zeta = \frac{1}{2} k^2 \frac{F\left(\frac{1}{2}, \frac{3}{2}, 2, k^2\right)}{F\left(\frac{1}{2}, \frac{1}{2}, 1, k^2\right)}$$

On the other hand, by a well known property of the hypergeometric series,

$$\frac{F\left(\frac{1}{2}, \frac{3}{2}, 2, k^2\right)}{F\left(\frac{1}{2}, \frac{1}{2}, 1, k^2\right)} = \cfrac{1}{1 - \cfrac{a_1 k^2}{1 - \cfrac{b_1 k^2}{1 - \cfrac{a_2 k^2}{1 - \cfrac{b_2 k^2}{1 - \ddots}}}}}$$

[1] See American Journal of Mathematics, Vol. XVII, No. 1, p. 86.

[1] A. J. of Math. Ibid.

where

$$a_1 = \frac{\left(\frac{1}{2}\right)^2}{1.\,2};\quad a_2 = \frac{\left(\frac{3}{2}\right)^2}{3.\,4};\quad \ldots\ldots$$

$$b_1 = \frac{\left(\frac{3}{2}\right)^2}{2.\,3};\quad b_2 = \frac{\left(\frac{5}{2}\right)^2}{4.\,5};\quad \ldots\ldots$$

It will be sufficient for our purposes to take for ζ the approximate value:

$$\zeta = \frac{1}{2}k^2\left(1 + \frac{1}{8}k^2 + \frac{1}{16}k^4\right)$$

We may now write the expression of N in the following form:

$$N = x + \frac{C}{2A}y$$

$$x = -p_1 \sin\lambda + p_2 \cos\lambda \sin\varphi_0$$
$$y = \quad q_1 \sin\lambda + q_2 \cos\lambda \sin\varphi_0$$

The following table contains the values of lg p_1, lg p_2, lg q_1, lg q_2 for different values of the angle θ_0.

θ_0	30′	1°	1° 30′	2°	2° 30′
lg p_1	$\bar{1}.9999876$	$\bar{1}.9999504$	$\bar{1}.9998884$	$\bar{1}.9998016$	$\bar{1}.9996900$
lg p_2	$\bar{7}.222434$	$\bar{6}.122959$	$\bar{6}.651463$	$\bar{5}.026641$	$\bar{5}.317213$
lg q_1	$\bar{1}.9999757$	$\bar{1}.9999008$	$\bar{1}.9997768$	$\bar{1}.9996031$	$\bar{1}.9993798$
lg q_2	$\bar{3}.9408341$	$\bar{2}.2418223$	$\bar{2}.4178446$	$\bar{2}.5426869$	$\bar{2}.6394729$

θ_0	3°	4°	5°	6°	7°
lg p_1	$\bar{1}.9995535$	$\bar{1}.9992065$	$\bar{1}.9987603$	$\bar{1}.9982151$	$\bar{1}.9975710$
lg p_2	$\bar{5}.5547334$	$\bar{5}.9294919$	$\bar{4}.2201157$	$\bar{4}.4575100$	$\bar{4}.6581741$
lg q_1	$\bar{1}.9991067$	$\bar{1}.9984114$	$\bar{1}.9975169$	$\bar{1}.9964227$	$\bar{1}.9951284$
lg q_2	$\bar{2}.7185025$	$\bar{2}.8430551$	$\bar{2}.9394687$	$\bar{1}.0180430$	$\bar{1}.0842722$

θ_0	8°	10°	12°	15°	20°
lg p_1	$\bar{1}.9968282$	$\bar{1}.9950470$	$\bar{1}.9928759$	$\bar{1}.9888717$	$\bar{1}.9802873$
lg p_2	$\bar{4}.8319310$	$\bar{3}.1221632$	$\bar{3}.3589015$	$\bar{3}.6489587$	$\bar{2}.0210807$
lg q_1	$\bar{1}.9936331$	$\bar{1}.9900368$	$\bar{1}.9856265$	$\bar{1}.9774648$	$\bar{1}.9596370$
lg q_2	$\bar{1}.1414356$	$\bar{1}.2363555$	$\bar{1}.3131010$	$\bar{1}.4055172$	$\bar{1}.5207029$

The rotation of the *apparent* plane of oscillation takes place clockwise if $N < 0$, contra-clockwise if $N > 0$. If $N = 0$, there will be no rotation at all.

The maximum angular velocity is obtained for $\varphi_0 = -\frac{\pi}{2}$, *i. e.* when the pendulum starts in the plane of the meridian and is initially deviated towards the North. If x_1 and y_1 be the values of x and y in this case,

$$x_1 = -p_1 \sin\lambda - p_2 \cos\lambda$$
$$y_1 = \quad q_1 \sin\lambda - q_2 \cos\lambda.$$

The angular velocity becomes a maximum only when the motion takes place clockwise. Let N_1 be the value of N in this case. Then [1]

$$N_1 = x_1 + \frac{C}{2A}y_1 = -(n_1 \sin\lambda + n_2 \cos\lambda).$$

The minimum angular velocity is obtained for $\varphi_0 = \frac{\pi}{2}$, *i. e.* when the pendulum starts in the plane of the meridian and is initially deviated towards the South. Let x_2, y_2, N_2, be the values of x, y, N, in this case. We shall have:

$$x_2 = -p_1 \sin\lambda + p_2 \cos\lambda$$
$$y_2 = \quad q_1 \sin\lambda + q_2 \cos\lambda$$
$$N_2 = x_2 + \frac{C}{2A}y_2 = -n_1 \sin\lambda + n_2 \cos\lambda,$$

and it is obvious that in this case the rotation of the apparent plane of oscillations may take place contra-clockwise as well as clockwise, according as $n_2 > n_1 \operatorname{tg}\lambda$ or $n_2 < n_1 \operatorname{tg}\lambda$. If $n_2 = n_1 \operatorname{tg}\lambda$, there will be no rotation. The case when $n_2 > n_1 \operatorname{tg}\lambda$ is the most interesting one. As the difference $n_2 \cos\lambda \sin\varphi_0 - n_1 \sin\lambda$ reaches its greatest value for $\sin\varphi_0 = 1$, still supposing that $N > 0$, *i. e.* $n_2 \sin\varphi_0 > n_1 \operatorname{tg}\lambda$, it appears that the greatest velocity in the contra-clockwise motion can be observed only for the *minimum* value of N; hence this motion in all cases will be slower than the clockwise motion. In the following table are given the values of x_1, x_2, y_1, y_2, for the latitude of Baltimore ($\lambda = 39° 18'$). This table contains also the values of $-\frac{x_2}{y_2}$. In order to obtain a contra-clockwise rotation it is necessary and sufficient that $\frac{C}{2A} > -\frac{x_2}{y_2}$.

θ_0	30′	1°	1° 30′	2°	2° 30′
x_1	− 0.63336	− 0.63331	− 0.63322	− 0.63310	− 0.63295
x_2	− 0.63336	− 0.63331	− 0.63322	− 0.63308	− 0.63291
y_1	+ 0.62660	+ 0.61974	+ 0.61281	+ 0.60580	+ 0.59874
y_2	+ 0.64010	+ 0.64674	+ 0.65331	+ 0.65980	+ 0.66622
$-\frac{x_2}{y_2}$	0.9895	0.9792	0.9693	0.9595	0.9500

θ_0	3°	4°	5°	6°	7°
x_1	− 0.63276	− 0.63229	− 0.63170	− 0.63100	− 0.63020
x_2	− 0.63270	− 0.63216	− 0.63145	− 0.63056	− 0.62950
y_1	+ 0.59161	+ 0.57715	+ 0.56245	+ 0.54752	+ 0.53236
y_2	+ 0.67255	+ 0.68499	+ 0.69709	+ 0.70886	+ 0.72027
$-\frac{x_2}{y_2}$	0.941	0.923	0.906	0.890	0.874

θ_0	8°	10°	12°	15°	20°
x_1	− 0.62930	− 0.62723	− 0.62485	− 0.62081	− 0.61339
x_2	− 0.62824	− 0.62517	− 0.62131	− 0.61391	− 0.59715
y_1	+ 0.51699	+ 0.48564	+ 0.45363	+ 0.40448	+ 0.32051
y_2	+ 0.73133	+ 0.75236	+ 0.77189	+ 0.79828	+ 0.83383
$-\frac{x_2}{y_2}$	0.859	0.831	0.805	0.769	0.716

If, for example, we take $\theta_0 = 15°$; $\frac{C}{2A} = 0.9$; we shall have $N_1 = -0.257\,\omega$; $N_2 = +0.105\,\omega$; *i. e.* if the pendulum starts in the plane of the meridian with an initial deviation of 15° towards the North, the *apparent* plane of oscillation will rotate clockwise with the angular velocity of 3′.85 pro second. If the same pendulum be started again in the plane of the meridian with the same initial deviation (15°), only this time towards the South, the apparent plane of oscillation would rotate contra-clockwise with the angular velocity of 1′.57 pro second.

The resistance of the air was not taken into account in this investigation. The experiments should be therefore made in vacuum.

[1] It is well to note, that both n_1 and n_2 are > 0.

RECENT PUBLICATIONS IN HISTORY AND POLITICS.

The following list enumerates publications, within the past year, in the department of History and Politics, by those who are now or who have been members of the University. It is printed for the information of their friends and colleagues and is not supposed to be complete.

ADAMS, HENRY C. Statistics; Census. (*Revised Articles in Johnson's Encyclopædia.*)
—— Reports as Statistician of the Interstate Commerce Commission. (*Washington*, 1894-95.)
—— Publicity and Corporate Abuses; Suggestions for a System of Taxation. (*Michigan Political Science Association, May*, 1894.)
—— The Railway Situation in the United States. (*Review of Reviews, August*, 1894.)
ADAMS, HERBERT B. Is History Past Politics? (*Studies in History and Politics, XIII*, 3-4.)
—— Report of the American Historical Association for the Year 1893. (*Washington*, 1894.)
—— Editor Johns Hopkins University Studies: Vol. XII, Institutional and Economic History. (*Baltimore*, 1894.)
—— Editor of Contributions to American Educational History, Nos. 14-18. (*Washington*, 1893-94.)
—— Relation of Preparatory Schools to Higher Education. An Address delivered February 22, 1894, to the Frederick College Alumni Association. (*The Baltimore Sun, February 23*, 1894.)
—— The Historical Work of Herbert Tuttle. (*Proceedings of the Tenth Annual Meeting of the American Historical Association*, 1894.)
—— and J. H. Hollander. A Sketch of Haym Salomon. From an Unpublished MS. in the Papers of Jared Sparks. With Introduction, Notes, and Bibliography. (*Publications of the American Jewish Historical Society*, 1894.)
ANDREWS, C. M. Review of Bryan's "Mark in England and America." (*Political Science Quarterly, March*, 1894.)
—— Review of the Early Records of the Town of Providence. (*American Academy of Political and Social Science, March*, 1894.)
—— The Connecticut Intestacy Law. (*Yale Review, November*, 1894.)
APPLEGARTH, ALBERT C. German University Life. (*Friends' Review*, 1894.)
BASSETT, J. S. The Relation between Rome and the Early Kentish Church. (*To-Day, April*, 1894.)
—— The Naming of the Carolinas. (*The Sewanee Review, May*, 1894.)
—— The Constitutional Beginnings of North Carolina (1663-1729.)
Dissertation for the Degree of Doctor of Philosophy.
—— The Study of History and Political Science for Southern Youths. (*The Methodist Review, Nashville*, 1895.)
—— The Regulators of North Carolina (1765-1771). (*Proceedings of the Tenth Annual Meeting of the American Historical Association*, 1894.)
BEMIS, E. W. Note on the Convention of the American Federation of Labor; Report on Charges against Gas Companies in Massachusetts. (*Journal of Political Economy, March*, 1894.)
—— Review of Eighth Annual Report of the Board of Gas and Electric Light Commissioners of Massachusetts; and Gray's Stellung der Privaten Beleuchtungsgesellschaften an Stadt und Staat. (*Ib.*)
—— Homestead Strike. (*Ib., June*, 1894.)
—— Recent Tendencies in Economic and Social Science; Problems of Municipal Reform. (*The Dial*, 1894.)
—— The Coal Miner's Strike. (*The Outlook*, 1894.)
—— Relation of Labor Organizations to Trade Instruction. (*American Academy of Political and Social Science, September*, 1894.)
—— University Extension among the Wage-Workers. (*University Extension, Phila., Oct.*, 1894.)
BENTLEY, A. F. The Units of Investigation in the Social Sciences. (*Annals of American Academy of Political and Social Science, May*, 1895.)
BEVAN, W. L. Sir William Petty: A study in English Economic Literature. (*American Economic Association, August*, 1894.)
BLACK, J. W. Savagery and Survivals. (*Popular Science Monthly, July*, 1894.)
BLACKMAR, F. W. Two Examples of Successful Profit-sharing. (*The Forum, March*, 1895.)
BLOOMFIELD, M. Race-Prejudice. (*The New World, Vol. II., No.* 13.)
CARRUTH, W. H. Foreign Settlements in Kansas. (*Kansas University Quarterly, October*, 1894.)
CARVER, T. N. Theory of Wages Adjusted to Theories of Value. (*Quarterly Journal of Economics, July*, 1894.)
COLER, G. P. Claims of Pedagogy in Colleges and Universities. (*Columbus*, 1894.)
COMMONS, JOHN R. The Distribution of Wealth. (*New York, Macmillan*, 1894.)
—— Proportional Representation in Belgium. (*Proportional Representation Review, March*, 1894.)
—— Proportional Representation in Cities. (*Social Economist, New York, June*, 1894.)
—— Social Reform and the Church. (*New York, Crowell*, 1894.)
—— Outlines of Lectures on City Government. (*Greencastle, Ind.*, 1894.)
CRAVEN, A. F. Absolutism and Individuality in Education.
Dissertation for the Degree of Doctor of Philosophy.
DEWEY, J. Austin's Theory of Sovereignty. (*Political Science Quarterly, March*, 1894.)
—— The Philosophical Renascence in America. (*The Dial, Chicago, February* 1, 1895.)
ELY, R. T. Editor of Library of Economics and Politics. (*New York, Crowell*, 1894.)
—— Natural Monopolies and the Workingman. (*North American Review, March*, 1894.)
—— Social Aspects of Christianity and Other Essays. (*New York, Crowell*, 1894.)
—— Socialism: An Examination of its Nature, its Strength, and its Weakness, with suggestions for Social Reform. (*New York, Crowell*, 1894.)
—— Preface to the translation of Paul Göhre's Three Months in a Workshop. (*Social Science Series*, 1894.)
FINLEY, J. H. How not to Help the Poor. (*The Chautauquan, February and March*, 1894.)
FLOOD, NED ARDEN. Aspects of the Labor Problem. (*American Journal of Politics, January*, 1894.)
GOULD, E. R. L. European Bureaus of Labor Statistics. (*Yale Review, February*, 1894.)
—— The Gothenburg System and our Liquor Traffic. (*The Forum, March*, 1894; *also published in separate form, Baltimore*, 1895.)
—— How Baltimore banished Tramps and helped the Idle. (*The Forum, June*, 1894.)
—— The Temperance Problem—Past and Future. (*The Forum, November*, 1894.)
—— The Social Improvement of Industrial Labor. (*Engineering Magazine, December*, 1894.)
—— Industrial Conciliation and Arbitration. (*Leslie's Weekly, December* 28, 1894.)
—— Industrial Conciliation and Arbitration. (*Yale Review, February*, 1895.)
—— Popular Control of the Liquor Traffic. (*Baltimore, Friedenwald Co.*, 1895.)
—— Industrial Conciliation and Arbitration in Europe and Australasia. (*Yale Review, February*, 1895.)
GREEN, D. I. Pain-cost and Opportunity-cost. (*Quarterly Journal of Economics, January*, 1894.)
—— Wieser's Natural Value. (*American Academy of Political and Social Science, January*, 1895.)
HALL, A. C. An Observer in Coxey's Camp. (*The Independent, May* 17, 1894.)
HAYNES, G. H. History of Representation and Suffrage in Massachusetts (1620-1691.)
Dissertation for the Degree of Doctor of Philosophy.
—— John MacCunn's "Ethics of Citizenship." (*American Academy of Political and Social Science, November*, 1894.)
—— C. F. Adams' "Massachusetts: Its History and its Historians." (*American Academy of Political and Social Science, March*, 1894.)
—— John Fiske's "Discovery of America." (*Ib., September*, 1894.)
—— The Historical Pilgrimage. (*The Outlook, August* 18, 1894.)
HAYNES, JOHN. Review of Shaw's "Municipal Government in Great Britain." (*Baltimore Journal of Commerce, February* 23, 1895.)
HAZEN, C. D. Translation of Borgeaud's Etablissement et Revision des Constitutions en Europe et Amerique. (*New York, Macmillan*, 1895.)
HOLLANDER, J. H. The Cincinnati Southern Railway: A Study in Municipal Activity.
Dissertation for the Degree of Doctor of Philosophy.
—— Clark's Use of "Rent" and "Profits." (*American Academy of Political and Social Science, November*, 1894.)
—— The Concept of Marginal Rent. (*Quarterly Journal of Economics, January*, 1895.)
—— The Civil Status of the Jews in Maryland, 1634-1776. (*Publications of the American Jewish Historical Society*, 1894.)
—— A Sketch of Haym Salomon. From an Unpublished MS. in the Papers of Jared Sparks. (Contributed by H. B. Adams.) With Introduction, Notes, and Bibliography. (*Ib.*)
HOWE, F. C. Federal Revenues and Income Tax.
Dissertation for the Degree of Doctor of Philosophy.
HUGHSON, S. C. The Dispensary Liquor Law of South Carolina. (*To-Day, January*, 1894.)
—— Carolina Pirates and Colonial Commerce, 1670-1740. (*University Studies, Baltimore*, 1894.)
—— The Feudal Laws of Carolina. (*The Sewanee Review, Vol. II, No.* 4.)
HUME, J. G. Socialism. An Address delivered before the Knox College Alumni Association. (*Knox College Monthly, April*, 1894.)
HUNT, R. D. California's Name: The True Etymology of the Name. (*Sacramento Daily Record-Union, March* 24, *and Sacramento Weekly, March* 30, 1894.)
HYSLOP, J. H. A Bootless Wrangle about Religion in the Schools. (*The Forum, February*, 1894.)
—— Charity Organization and Labor Bureaus. (*The Charities Review, November*, 1894.)
—— Causes of Poverty. (*The Charities Review, June*, 1894.)
INGLE, E. A Parasitic Type of Co-operation. (*The Southern Magazine, March*, 1894.)
JAMES, J. A. English Institutions and the American Indian.
Dissertation for the Degree of Doctor of Philosophy.
—— The Beginning of University Extension in Iowa. (*University Extension, November*, 1894.)
JAMESON, J. F. Editor of Papers from the Historical Seminary of Brown University (1894.)
—— Origin of Standing Committees. (*Political Science Quarterly, June*, 1894.)
—— Dictionary of United States History, 1492-1894. (*Boston*, 1894.)
JOHNSON, E. R. Relation of Taxation to Monopolies. (*American Academy of Political and Social Science, March*, 1894.)
—— Improvement of Country Roads in Massachusetts and New York. (*Ib., September*, 1894.)
JONES, F. R. The Johns Hopkins University. (*Western Maryland College Monthly*, 1894.)
KINLEY, DAVID. The History, Organization and Influence of the Independent Treasury of the United States. (*New York, Crowell*, 1894.)
—— University Extension and the Workingman. (*University Extension Magazine*, 1894.)
—— Credit Instruments in Retail Trade. (*The Journal of Political Economy, March*, 1895.)
LANIER, C. D. Robert Louis Stevenson. (*The Review of Reviews, February*, 1895.)
KRIEHN, G. English Popular Uprisings in the Middle Ages. (*Proceedings of the American Historical Association for* 1893. *Washington*, 1894.)
LATANÉ, J. H. The Early Relations between Maryland and Virginia. (*Studies in History and Politics, XIII*, 3-4.)
Dissertation for the Degree of Doctor of Philosophy.
LYNES, G. R. Currency and Banking. A Review of the Present Discussion. (*Baltimore American, December* 16-17, 1894.)
—— Hebrew Patriarchal Institutions. (*Baltimore Methodist, February* 14, 1895.)
MARKHAM, W. C. The Ante-Puritan Sabbath. (*Baker University*, 1894.)
MCCONACHIE, L. G. Baltimore, Maryland. Prize Essay, No. 233. (*United States Investor, April* 7, 1894.)

McILWAINE, H. R. The Struggle of Protestant Dissenters for Religious Toleration in Virginia.
Dissertation for the Degree of Doctor of Philosophy.

MERRIAM, L. S. Money as a Measure of Value. (*American Academy of Political and Social Science, May*, 1894.)

—— An Unfinished Study. (Edited by J. B. Clark.) (*Ib.*)

—— The Pacific Railroad Telegraphs. (*Political Science Quarterly, June*, 1894.)

—— History of Higher Education in Tennessee. (*Washington, Government Printing Office*, 1893.) [*Issued in* 1894.]

MILLION, J. W. Debate on the National Bank Account of 1863. (*Journal of Political Economy, March*, 1894.)

—— State Aid to Railroads in Missouri. (*Journal of Political Economy, December*, 1894.)

MOORE, H. L. v. Thünen's Theory of Natural Wages. (*Quarterly Journal of Economics, April*, 1895.)

MORAN, T. F. The Gothenburg Method of Regulating Liquor Traffic. (*The Charities Review, April*, 1894.)

—— The Rise and Development of the Bicameral System in America.
Dissertation for the Degree of Doctor of Philosophy.

NEELY, J. C. C. Old Japan. (*The Methodist Review, Nashville, January-February*, 1895.)

—— Progress in our Theological Seminaries. (*The Christian Advocate, February* 28, 1895.)

POWELL, L. P. The Historical Pilgrimage of 1894. (*The Spirit of '76, September*, 1894.)

PRATT, W. S. Music as a University Study. (*Music, Chicago*, 1894.)

RAMAGE, B. J. Flora Macdonald; Sam Houston and Texan Independence; Dr. Ely on Social Reform. (*The Sewanee Review*, 1894.)

—— How to Accomplish Tax Reform. (*The Taxpayer, Chattanooga, November*, 1894.)

—— Schools of Finance and Economy. (*Proceedings of the Tennessee Bankers' Association*, 1894.)

—— The Railroad Question. (*The Sewanee Review, February*, 1895.)

REEVES, J. S. The International Beginnings of the Congo Free State.
Dissertation for the Degree of Doctor of Philosophy.

RILEY, F. L. Some Educational Tendencies of the Present Day. (*Lawrence County Press, May* 31, 1894.)

ROSS, E. A. The Extension of Economic Teaching. (*University Extension, November*, 1894.)

RUTTER, F. R. Discrimination and Pooling. (*Baltimore Journal of Commerce, February* 16, 1895.)

SCOTT, WILLIAM A. The Repudiation of State Debts. (*New York: Crowell*, 1893.)

—— Distribution of Wealth in the United States. (*The Chautauquan, June*, 1894.)

SCHOLER, JAMES. Historical Industries. (*Yale Review, May*, 1894.)

—— New Edition of his History of the United States. (1895.)

—— Dangers in our Presidential Election-System. (*The Forum, January*, 1895.)

SEAGER, H. R. Pennsylvaoia Tax Conference. (*American Academy of Political and Social Science, March*, 1894.)

SHAW, ALBERT. Relief for the Unemployed in American Cities. (*The Review of Reviews, January*, 1894.)

—— Hamburg's New Sanitary Impulse. (*Atlantic Monthly, June*, 1894.)

—— The Government of German Cities. (*Century Magazine, June*, 1894.)

—— Municipal Government in Great Britain. (*New York: The Century Co.*, 1895.)

—— Our "Civic Renaissance." (*Review of Reviews, April*, 1895.)

SHAW, W. B. Comparative Summary and Index of State Legislation in 1893. (Summary for 26 States.) (*New York State Library Bulletin*, 1894.)

—— Social and Economic Legislation of the States in 1893 and in 1894. (*Quarterly Journal of Economics*, 1894, 1895.)

SHERWOOD, SIDNEY. The Nature of Mechanism of Credit. (*Quarterly Journal of Economics, January*, 1894. *Reviewed in Le Monde Economique, April* 7, 1894.)

—— University Extension as a Method of Research. (*University Extension, May*, 1894.)

SMALL, A. W. An Introduction to the Study of Society. (*New York: Amer. Book Co.*, 1894.)

—— The New Humanity. (*University Extension World, July*, 1894.)

—— Relation of Sociology to Economics. (*The Journal of Political Economy, March*, 1895.)

—— Methods of Studying Society. (*The Chautauquan, April*, 1895.)

SMITH, C. L. The Money Question. (*The Literary Record, St. Joseph, Mo.*, 1894.)

—— Address to Graduating Class of the Kansas City Medical College. (*The Kansas City Times, March* 23, 1894.)

—— The Labor Problem; The Church and the Wage-Earner. (*The Central Baptist, St. Louis, February* 22 *and March* 15, 1894.)

—— Unrest, Money, and Man. (*Ib., September* 27, 1894.)

—— The Revolution: A Warning. (*Ib., August* 23, 1894.)

SMITH, C. L. Industrial and Political Evils. (*Ib., August* 9, 1894.)

—— The Governmental Ownership of the Telegraph. (*Ib., July* 5, 1894.)

—— The Government and the Railway. (*Ib., May* 31, 1894.)

—— Some Practical Suggestions. (*Ib., May* 3, 1895.)

—— The Citizen and the State. (*Ib., April* 12, 1894.)

—— Banking in the United States. (*The Literary Record, September*, 1894.)

—— Paper Money: Theory and History. (*Ib., July–August*, 1894.)

—— The Battle of the Standards: Binetalism. (*Ib., June*, 1894.)

—— The Money Question. (*St. Joseph, The Shirley Press*, 1894.)

STEINER, B. C. History of Education in Connecticut. (*Washington: Government Printing Office*, 1894.)

—— History of Education in Maryland. (*Washington: Government Printing Office*, 1894.)

—— The Sunday School Library. (*The Field Record, Baltimore, December*, 1894.)

TOLMAN, W. H. Scientific Rescue Mission Work. (*The City Vigilant, March*, 1894.)

—— Lavatories and Mortuaries. (*Paper read at 8th Municipal Conference, New York City, April* 26, 1894.)

—— Power of the Saloon in Politics. (*The Independent, October* 4, 1894.)

—— History of Higher Education in Rhode Island. (*Washington: Government Printing Office*, 1894.)

—— Evils of the Tenement House System. (*The Arena, April*, 1894.)

—— Municipal Reform Movements. (*New York, F. H. Revell Co.*, 1895.)

TRENT, W. P. Editor of the Sewanee Review.

—— A Noteworthy Biography [Leonidas Polk]; Some Translations from Horace. (*The Sewanee Review, November*, 1894.)

—— The Popular Presentation of Literature. (*University Extension*, 1894.)

TURNER, F. J. The Significance of the Frontier in American History. (*State Historical Society of Wisconsin, Madison*, 1894.)

—— Crossing the Continent. (*The Dial, February* 1, 1894.)

VEBLEN, T. B. Kautzky's "Parlamentarismus, Volksgesetzgebung und Sozialdemokratie," and Bean's "Study of Small Holdings." (*Journal of Political Economy, March*, 1894.)

VINCENT, J. M. Introduction to C. D. Hazen's Translation of Borgeaud's Établissement et Révision des Constitutions en Amérique et en Europe. (*New York, Macmillan*, 1895.)

—— Contributions toward a Bibliography of American History, 1888–1892. (*Annual Report of the American Historical Association for* 1893, *pp.* 505–572. *Washington*, 1894.)

WAITE, F. C. Prices and Wages: A Dissection of the Senate Finance Committee's Great Report as Interpreted by its Statistician and by Hon. C. D. Wright. (*Washington*, 1894.)

WARNER, A. G. American Charities: A Study in Philanthropy and Economics. (*New York, Crowell*, 1894.)

—— The Causes of Poverty Further Considered. (*American Statistical Association, September*, 1894.)

WARREN, F. M. The Effects on Italy of her Foreign Policy. (*The Chautauquan, May*, 1894.)

WEEKS, S. B. The University of North Carolina in 1795. (*North Carolina University Magazine, March–April*, 1894.)

—— A Bibliography of the Historical Literature of North Carolina. (*Harvard University Bulletin, May*, 1893–*October*, 1894.)

—— Negro Suffrage in the South. (*Political Science Quarterly, December*, 1894.)

—— General Joseph Martin and the War of the Revolution in the West. (*American Historical Association, Washington*, 1894.)

WHITEHORN, M. The New Criminology. (*To-Day, May*, 1894.)

WILLOUGHBY, W. F. Statistique des Accidents des Employés de Chemins de Fer aux États-Unis. (*Congrès International des Accidents du Travail & Milieu du 1er au 6 Octobre*, 1894.)

WILLOUGHBY, W. F. and W. W. Schools for Recruiting the Civil Service in France and an Account of the Civil Service Requirements in Prussia. (*From the Annual Report of the U. S. Commissioner of Education*, 1891–92.) [*Issued in* 1895.]

WILLOUGHBY, W. W. The Penalties of a Higher Life. (*The Sequoia, Stanford University February* 1, 1895.)

WILSON, WOODROW. A Calendar of Great Americans. (*The Forum, February*, 1894.)

—— University Training and Citizenship. (*The Forum, September*, 1894.)

WOODBURN, J. A. The Study of Politics in American Colleges. (*American Journal of Politics, May*, 1894.)

WOODFORD, A. B. The Economic Primer: A Summary of the Philosophy of Lower Prices, Higher Wages and Shorter Hours. (*New York School of Social Economics*, 1894-95.)

STUDIES IN HISTORY AND POLITICS.

TWELFTH SERIES.—Institutional and Economic History.—1894.—$3.50.

I-II. **The Cincinnati Southern Railway: A Study in Municipal Activity.** By J. H. HOLLANDER. With a Memorial of Dr. Lucius S. Merriam, late Fellow in Economics. By J. H. HOLLANDER and others. $1.00.

III. **The Constitutional Beginnings of North Carolina (1663-1729).** By J. S. BASSETT. *50 cents.*

IV. **The Struggle of Protestant Dissenters for Religious Toleration in Virginia.** By H. R. MCILWAINE. *50 cents.*

V-VI-VII. **The Carolina Pirates and Colonial Commerce (1670-1740).** By S. C. HUGHSON. $1.00.

VIII-IX. **History of Representation and Suffrage in Massachusetts (1620-1691).** By G. H. HAYNES. *50 cents.*

X. **English Institutions and the American Indian.** By J. A. JAMES. *25 cents.*

XI-XII. **The International Beginnings of the Congo Free State.** By J. S. REEVES. *50 cents.*

THIRTEENTH SERIES.—1895.—Subscription, $3.00.

I-II. **Government of the Colony of South Carolina.** By EDSON L. WHITNEY. *75 cents.*
III-IV. **Early Relations between Maryland and Virginia.** By J. H. LATANÉ. *50 cents.*
V. **The Rise and Development of the Bicameral System in America.** By THOMAS F. MORAN. *50 cents.*
VI. **White Servitude in the Colony of Virginia.** By JAMES C. BALLAGH. *50 cents.*
VII. **The Genesis of California's First Constitution (1846-1849).** By R. D. HUNT *50 cents.*
Financial History of Baltimore. By J. H. HOLLANDER.
Social Condition of Textile Labor. By F. R. L. GOULD.
Jared Sparks and DeTocqueville. By HERBERT B. ADAMS.
Higher Popular Education in Baltimore. By HERBERT B. ADAMS.
The City Government of Baltimore. By THADDEUS P. THOMAS.
Contemporary American Opinion of the French Revolution. By CHARLES D. HAZEN.
Other papers will be from time to time announced.

The set of twelve series is now offered, uniformly bound in cloth, for library use, for $36, and including subscription to the current (thirteenth) series, for $39.00. The twelve series, with thirteen extra volumes, altogether twenty-five volumes in cloth, for $55.00.

CURRENT NOTES.

PROCEEDINGS OF SOCIETIES.

Philological Association.

March 15, 1895.—One hundred and forty-first regular meeting. Professor GILDERSLEEVE in the chair. Thirty-four members present.

On the Development of Popular Latin Accented Vowels in old French, by L. E. MENGER.

An Attempt to give a more satisfactory Definition of Sound Rhythm, by C. W. E. MILLER.

Historical and Political Science Association.

March 1, 1895.

White Servitude in the Colony of Virginia, by J. C. BALLAGH.

Levasseur's "Le salaire aux Etats-Unis," by F. E. SPARKS.

Levasseur on "L'instruction primaire aux Etats-Unis," by W. S. LEWIS.

Levasseur on "La question des sources du Mississippi," by G. W. WARD.

March 14.

The City Government of Baltimore, by T. P. THOMAS.

Ritchie's "Natural Rights," by M. REIZENSTEIN.

Recent Sociological Studies, by E. W. SIKES.

Origin and History of Tammany, by C. O. PAULLIN.

March 29.

The Labadists and their Colony in Maryland, by B. B. JAMES.

Economic and Statistical Associations in Paris, by W. F. WILLOUGHBY.

Levasseur on "Agriculture aux Etats-Unis," by F. R. RUTTER.

Barneaud on "Jefferson et l'Education en Virginie," by L. V. GERDINE.

Mathematical Seminary.

Directed by Professor CRAIG.

February Meetings.—In charge of J. S. MORRIS.

February 27.—On Double Theta-Functions, continued, by J. S. MORRIS.

March Meetings.—In charge of A. H. WILSON.

March 6.—Torsion and Geodesic Curvature of Twisted Curves, by C. E. COMSTOCK.

March 13 and 20.—Inversion of the Abelian Integrals, by C. R. DUVALL.

March 27.—Projective and Linear Transformations, by E. H. JOHNSON.

April Meetings.—In charge of N. A. PATTILLO.

April 3.—Surfaces whose Lines of Curvature are Isothermal, by J. EIESLAND.

Naturalists' Field Club.

March 12.

The Formation of Asexual Generation in Botrydium granulatum, by D. S. JOHNSON.

The Germination of Chara coronata, by J. P. LOTSY.

Notes on the Black-crowned Night Heron, by GEO. H. GRAY.

Young Men's Christian Association.

March 12.—Address before the Association, by W. H. MORRISS, Esq., General Secretary, Central Y. M. C. A., Baltimore.

March 19.—Address to Undergraduates, by Dr. JAMES CAREY THOMAS.

March 24.—Public lecture, under the auspices of the Association, by Professor E. H. GRIFFIN, on "The Ethics of the Bible."

PUBLIC MEETINGS AND SOCIAL ASSEMBLIES.

Held in the University buildings from January 1 to April 5, 1895.

Matriculate Society of the University, January 26 and March 15 [McCoy Hall].

Annual Meeting of the Baltimore Society for the Suppression of Vice, February 12 [Levering Hall].

Social Reception of the friends of Charity Organization in Baltimore, March 18 [McCoy Hall].

Addresses before the Arundell Society on the Preparation of Food, March 22 [Levering Hall].

Reception in honor of Professor Winchester, by the Graduate Students' Association, April 5 [McCoy Hall].

Rev. SOLOMON SCHECHTER, M. A., Reader in the Talmud in the University of Cambridge, England, gave a lecture on the subject of Rabbinical Theology before the students of the Oriental Seminary, March 6.

Dr. M. D. LEARNED, Associate Professor of German, has recently been elected Professor of German in the University of Pennsylvania, where his duties will begin in October, 1895.

Dr. E. R. L. GOULD, Lecturer in Statistics, has accepted the Professorship of Statistics in the University of Chicago, his duties to begin in October, 1895.

LECTURES ON EDUCATIONAL SUBJECTS.

A course of lectures on educational topics is now in progress in McCoy Hall, on Saturday mornings, beginning at ten minutes after 9 o'clock. The lecturers and their topics are as follows:

I. President GILMAN: Impending Problems of American Education. March 9.
II. Professor WARREN: Latin Inscriptions as related to the Study of the Latin Language and Literature. March 16.
III. Professor ADAMS: The Art of Expression. March 23.
IV. Dr. KIRBY F. SMITH: Advantages for the Study of Classical Archæology in Baltimore. March 30.
V. Professor BROOKS: Life. April 6.
VI. Professor GRIFFIN: Habits of Reading. April 20.

The lectures have been attended by members of the University and by persons engaged in teaching in Baltimore.

DONOVAN LECTURES ON ENGLISH LITERATURE.

Professor CALEB T. WINCHESTER, A. M., Professor of English Literature in Wesleyan University, has recently given nine lectures in McCoy Hall on Some Representative Victorian Writers. His special topics were as follows:

I. Introductory: The Victorian Period. Monday, March 25.
II. Thomas Carlyle: Sartor Resartus and Carlyle's philosophy of life. Tuesday, March 26.
III. Thomas Carlyle: The Histories; Political and Social Writings. Thursday, March 28.
IV. Arthur Hugh Clough: Poetry of Religious Question. Friday, March 29.
V. Matthew Arnold: Poetry of Religious Question (continued). Monday, April 1.
VI. Alfred Tennyson: His Art. Tuesday, April 2.
VII. Alfred Tennyson: His Themes. Thursday, April 4.
VIII. Robert Browning: General Characteristics. Friday, April 5.
IX. Robert Browning: Special Themes. Monday, April 8.

By special request, Professor Winchester gave a lecture on the "Lake Poets," Saturday, April 6.

The PRIZE OF FIFTY DOLLARS offered by a friend of the University to encourage public speaking among the matriculated students has been awarded to ARTHUR C. WATKINS, whose subject was "Napoleon Bonaparte." Seven students, whose essays had been found worthy of public presentation, spoke in Levering Hall, March 14, before an audience of students and their friends. The judges were Messrs. Skipwith Wilmer, Allan McLane, Jr., and A. Marshall Elliott.

MEMOIRS FROM THE BIOLOGICAL LABORATORY.

Volume I (Selected Morphological Monographs, edited by W. K. BROOKS, Ph. D.), three hundred and seventy-five pages and fifty-one plates, quarto, and Volume II (Memoir on the Genus Salpa, by W. K. BROOKS, Ph. D.), in two parts—one part of text with three hundred and ninety-six pages, large quarto, and one part with fifty-seven large colored plates—can now be furnished together. Volume I is no longer sold separately. The price of Volume II is $7.50. The two volumes of Memoirs, bound in cloth, will be sold together for fifteen dollars, net, transportation paid.

The Johns Hopkins University Circulars are issued monthly. They are printed by Messrs. JOHN MURPHY & CO., No. 44 West Baltimore Street, Baltimore, from whom single copies may be obtained; they may also be procured from Messrs. CUSHING & CO., No. 34 West Baltimore Street, Baltimore. Subscriptions $1.00 a year, may be addressed to THE JOHNS HOPKINS PRESS, BALTIMORE; single copies will be sent by mail for ten cents each.